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Plants of the Arizona Chaparral

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Abstract

Lists the associations within the chaparral type, and the species that have been identified in the type, including scientific names, common names, duration, and relative abundance. As an aid to identification, family names are given as are distinguishing characteristics such as flower color, specific habitat requirements, unusual growth characteristics, etc. The species are listed according to growth form: grasses, forbs and grasslikes, half shrubs, shrubs, and trees.

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Introduction

Plants common to the chaparral type in Arizona (fig. 1) are listed. Of the species listed, only about 20% are of major importance; the remainder are seldom encountered and may be widely scattered throughout the type or only locally abundant. Only a few species are dominants in other than relatively small, localized areas. The associations within the type are named after these dominants (Carmichael et al. 1978):

1. Shrub live oak—mixed shrub (Qutu² mixed shrub)
2. Shrub live oak—mountainmahogany (Qutu-Cebe, or Cebr)
3. Mountainmahogany—mixed shrub (Cebe- or Cebr- mixed shrub)
4. Pointleaf manzanita (Arpu)
5. Pringle manzanita (Arpr)
6. Shrub live oak—datil yucca—yellowleaf silktassel (Qutu-Yuba-Gafl)
7. Arizona white oak—yellowleaf silktassel—Emory oak (Quar-Gafl-Quem)
8. Arizona cypress-shrub live oak (Cuar-Qutu)
9. Yerba santa-desert ceanothus (Eran-Cegr)

The most widespread and frequent dominant is shrub live oak (Qutu); this species, either as the principle dominant or in association with one of the mountainmahoganies (Cebe or Cebr), dominates more than 50% of the Arizona chaparral. Other important and widespread, though never dominant, shrubs are hollyleaf buckthorn (Rhcr), Parry agave (Aga), California brickellia (Brca), skunkbush sumac (Rhtr), sugar sumac (Rhov), and Wright silktassel (Gawr). Other trees that are likely to be encountered over much of the type are the junipers (Jumo, Jude, and Juos), Gambel oak (Quga), pinyon (Pied), and Ponderosa pine (Pipo).

The most commonly encountered half-shrubs are broom menodora (Mesc), broom snakeweed (Gusa), Wright buckwheat (Erwr), penstemons (*Penstemon* spp.), groundsels (*Senecio* spp.) and globemallows (*Sphaeralcea* spp.).

Many forbs are common and sometimes abundant, including plains pricklepoppy (Arin), milkweeds (*Asclepias* spp.), locos (*Astragalus* spp.), asters (*Aster* spp.), spiderlings (*Boerhaavia* spp.), thistles (*Cirsium* spp.), tansymustards (*Descurainia* spp.), fleabanes (*Erigeron* spp.), filaree (Erci), spurges (*Euphorbia* spp.), morningglories (*Ipomoea* spp.), penstemons (*Penstemon* spp.), groundsels (*Senecio* spp.), globemallows (*Sphaeralcea* spp.), and Wright's verbena (Vewr).

²Species symbols, formed from the first two letters of each of the two words making up the scientific names, are used as identifiers in the text in place of full botanical names; species symbols are formed in this way for field recording (Nickerson et al. 1976).

Perennial grasses most likely to be encountered are blue grama (Bogr), sideoats grama (Bocu), hairy grama (Bohi), wolftail (Lyph), threeawns (*Aristida* spp.), squirreltail (Sihy), cane bluestem (Anba), bullgrass (Muem), longtongue mutton bluegrass (Polo), and the introduced lovegrasses, weeping (Ercu), Lehmann (Erle), and Boer (Erch). The most abundant annual grasses are stinkgrass (Erci), common witch-grass (Paca), sixweeks fescue (Feoc), six-weeks grama (Boba), needle grama (Boar), wild oat (Avfa), and red (foxtail) brome (Brru); red brome is a very prominent winter annual at elevations below 5,400 feet. It does not occur in abundance at higher elevations.

Arrangement and Explanation

Scientific names of forbs, half-shrubs, shrubs and trees generally follow Kearney and Peebles (1960), while their common names follow Kelsey and Dayton (1942)—in some cases common names used locally are given in parenthesis following the “standard” of Kelsey and Dayton. Scientific and common names of grasses generally follow Hitchcock (1960). As an aid to identification we have noted:

1. The duration (annual, biannual, or perennial) immediately following the scientific name of each species for grasses and forbs.
2. The family name for the forbs, half-shrubs, shrubs, and trees, plus the subfamily for legumes and the tribe for grasses.
3. The page number in Kearney and Peebles where family key begins for each forb, half-shrub, shrub, and tree, and in Hitchcock for each grass tribe (appendix 2).
4. Flower color, except for species where flowers are inconspicuous or have no petals. In the case of composites, the flower color refers to the ray flowers (abbreviations for flower colors are given in appendix 3.)
5. Easily recognized identifying characteristics (a glossary of terms used is included in appendix 4.)
6. Relative abundance.

Fire plays an important role in the environment of the Arizona chaparral. The dominant shrubs have adaptations which enable them to maintain dominance under the influence of recurrent burning. Knowledge of their fire-adaptive characteristics is sometimes helpful in identification. For this reason, these characteristics are listed in appendix 6.

The names of some species mentioned have been changed since Kearney and Peebles (1960) and Hitchcock (1960) were printed. The old names are retained in the list to simplify matters for most readers. Species whose names have recently been changed are indicated by a †, and the new name is given in appendix 7.

Grasses (Gramineae)

Species abbr.	Scientific and common name and duration ¹	Tribe ²	Distinguishing characteristics and relative abundance ³
Agex	<i>Agrostis exarata</i> P Spike bentgrass	Agr	Moist sites; uncom
Anba †	<i>Andropogon barbinodis</i> P Cane bluestem	And	Nodes bearded; com
Anca-2*	<i>A. caucasicus</i> P Caucasian bluestem	And	Plant reddish; uncom
Anci †	<i>A. cirratus</i> P Texas beardgrass	And	Nodes bearded, plant pale purplish; uncom
Anha	<i>A. hallii</i> P Sand bluestem	And	Rhizomatous; uncom
Anis*	<i>A. ischaemum</i> P East Indies bluestem	And	Uncom
Ansc †	<i>A. scoparius</i> P Little bluestem	And	Internodes hairy; uncom
Arad	<i>Aristida adscensionis</i> A Sixweeks three-awn	Agr	Awns equal 10-15 mm summer months; com
Arar-1	<i>A. arizonica</i> P Arizona three-awn	Agr	Awns equal, 10-15 mm; com
Ardi	<i>A. divaricata</i> P Poverty three-awn	Agr	Awns equal, 10-15 mm; com
Arfe-1	<i>A. fendleriana</i> P Fendler three-awn	Agr	Leaves basal, curly, awns equal 6-8 cm; com
Argl-1	<i>A. glabrata</i> P Santa Rita three-awn	Agr	Awns equal, 2-3 cm; uncom
Argl-2	<i>A. glauca</i> P Blue three-awn	Agr	Awns equal, 1.5-2.5 cm; com
Arha	<i>A. hamulosa</i> P Desert three-awn	Agr	Central awn straight, 2-2.5 cm, lateral awns 5-10 mm; com
Arlo	<i>A. longiseta</i> P Red three-awn	Agr	Awn equal 6-8 cm, plant reddish; com

¹ A-annual; P-perennial; biA-bi-annual.

² See appendix 1 for explanation of tribe abbreviations.

³ See appendix 5 for explanation of importance designations.

*Introduced species

† Indicates the specific name has been changed since Kearney and Peebles (1960) and Hitchcock (1960) were printed; new names for these species are in appendix 7.

Grasses (Gramineae)—Continued

Species abbr.	Scientific and common name and duration ¹	Tribe ²	Distinguishing characteristics and relative abundance ³
Arcl	<i>A. oligantha</i> A Prairie three-awn	Agr	Awns equal, 4-7 cm; uncom
Aror	<i>A. orcuttiana</i> P Single three-awn	Agr	Central awn 5-10 mm, lateral awns ob- solete to 1-2 mm; uncom
Arpa-1	<i>A. pansa</i> P Wooten three-awn	Agr	Awns horizontal, 10-20 mm; uncom
Arpa-3	<i>A. parishii</i> P Parish three-awn	Agr	Awns equal, 2.5 cm; uncom
Arpu-1	<i>A. purpurea</i> P Purple three-awn	Agr	Awns equal, 3-5 cm, plant purplish; com
Arte-1	<i>A. ternipes</i> P Spidergrass	Agr	Panicles spreading one-half height of plant, central awn 10-15 mm, lateral awns less than 2 mm; com
Arwr	<i>A. wrightii</i> P Wright three-awn	Agr	Awns equal, 2 cm; com
Ardo-1	<i>Arundo donax</i> P Giant reed	Fes	Rhizomatous, 2-6 m tall; uncom
Avfa	<i>Avena fatua</i> A Wild oat	Ave	Resembles oats, spring annual; com
Bltr	<i>Blepharoneuron tricholepis</i> P Pine dropseed	Agr	Spikelets single flowered; uncom
Boar	<i>Bouteloua aristidoides</i> A Needle grama	Chl	Resembles 3-awn; com
Boba	<i>B. barbata</i> A Sixweeks grama	Chl	Rosette-like plant; com
Bocu	<i>B. curtipendula</i> P Sideoats grama	Chl	Rhizomatous; com
Boer	<i>B. eriopoda</i> P Black grama	Chl	Stoloniferous, woolly at base; uncom
Bogr	<i>B. gracilis</i> P Blue grama	Chl	Leaves mostly basal; com
Bohi	<i>B. hirsuta</i> P Hairy grama	Chl	Rachis extends beyond the spikelets; com
Boro	<i>B. rothrockii</i> P Rothrock grama	Chl	Weak perennial; uncom

Grasses (Gramineae)—Continued

Species abbr.	Scientific and common name and duration ¹	Tribe ²	Distinguishing characteristics and relative abundance ³
Brar	<i>Bromus arizonicus</i> A Arizona brome	Fes	Winter annual; uncom
Brma	<i>B. marginatus</i> P Mountain brome	Fes	Plant of higher elevations, pubescent; com
Brrr*	<i>B. rigidus</i> A Ripgut brome	Fes	Winter annual, plant spreading; com
Brru-1*	<i>B. rubens</i> A Foxtail brome (Red brome)	Fes	Winter annual, plant spreading; com
Brte-1*	<i>B. tectorum</i> A Cheatgrass brome	Fes	Winter annual, plant spreading; uncom
Brtr*	<i>B. trinii</i> A Chilean brome	Fes	Winter annual, plant spreading; uncom
Ceci*	<i>Cenchrus ciliaris</i> P Buffelgrass	Pan	Culms abruptly bent above a knotty base; uncom
Cepa	<i>C. pauciflorus</i> A Sandbur	Pan	Prostrate, fruit a burr; uncom
Cyda	<i>Cynodon dactylon</i> P Bermudagrass	Chl	Stoloniferous, rhizomatous, prostrate, moist sites; uncom
Eccr	<i>Echinochloa crusgalli</i> A Barnyard grass	Pan	Rank annual; uncom
Elgl	<i>Elymus glaucus</i> P Blue wildrye	Hor	Culms bent at base; uncom
Erar	<i>Eragrostis arida</i> A Desert lovegrass	Fes	Culms branching at base; uncom
Erch*	<i>E. chloromelas</i> P Boer lovegrass	Fes	Com
Erci-2	<i>E. cilianensis</i> A Stinkgrass	Fes	Disagreeable odor; com
Ercu*	<i>E. curvula</i> P Weeping lovegrass	Fes	Large bunchgrass; com
Erin-1	<i>E. intermedia</i> P Plains lovegrass	Fes	Large bunchgrass; com
Erle*	<i>E. lehmanniana</i> P Lehmann lovegrass	Fes	Com

Grasses (Gramineae)—Continued

Species abbr.	Scientific and common name and duration ¹	Tribe ²	Distinguishing characteristics and relative abundance ³
Erme	<i>E. mexicana</i> A Mexican lovegrass	Fes	Uncom
Erpi*	<i>E. pilosa</i> A India lovegrass	Fes	Uncom
Ersu-3*	<i>E. superba</i> P Wilman lovegrass	Fes	Uncom
Ertr-1*	<i>E. trichodes</i> P Sand lovegrass	Fes	Uncom
Fear-1	<i>Festuca arizonica</i> P Arizona fescue	Fes	Higher elevations, in pine fringe, com
Femy	<i>F. myuros</i> A Rattail fescue	Fes	Uncom
Feoc †	<i>F. octoflora</i> Sixweeks fescue	Fes	Com
Fepa †	<i>F. pacifica</i> A Pacific fescue	Fes	Uncom
Heco-1	<i>Heteropogon contortus</i> P Tanglehead	And	High elevations, awns twisted and tangled; uncom
Hibe	<i>Hilaria belangeri</i> P Curly mesquite	Zoy	Stoloniferous, leaves, basal, curly; uncom
Hija	<i>H. jamesii</i> P Galleta	Zoy	Rhizomatous, bases often decumbent; uncom
Himu	<i>H. mutica</i> P Tobosa	Zoy	Rhizomatous; uncom
Huju	<i>Hordeum jubatum</i> P Foxtail barley	Hor	Uncom
Hole	<i>H. leporinum</i> A Mouse barley	Hor	Uncom
Kocr †	<i>Koeleria cristata</i> P Prairie junegrass	Ave	Higher elevations; uncom
Laau-2*	<i>Lamarckia aurea</i> A Goldentop	Fes	Uncom
Ledu	<i>Leptochloa dubia</i> P Green sprangletop	Chl	Com

Grasses (Gramineae)—Continued

Species abbr.	Scientific and common name and duration ¹	Tribe ²	Distinguishing characteristics and relative abundance ³
Lefi	<i>L. filiformis</i> A Red sprangletop	Chl	Uncom
Leco	<i>Leptoloma cognatum</i> P Fall witchgrass	Pan	Uncom
Lyph	<i>Lycurus phleoides</i> P Wolf tail	Agr	Resembles timothy; com
Muap	<i>Muhlenbergia appressa</i> P Canyon muhly	Agr	Panicles narrow; uncom
Mubr	<i>M. brevis</i> P Short muhly	Agr	Uncom
Muem	<i>M. emersleyi</i> P Bullgrass	Agr	Large bunchgrass, panicle purplish; com
Mufr	<i>M. fragilis</i> A Ticklegrass muhly	Agr	Uncom
Mulo	<i>M. longiligula</i> P Longtongue muhly	Agr	Bases of plants hard, large bunch-grass; com
Mumi-2	<i>M. microsperma</i> A Littleseed muhly	Agr	Uncom
Mumo-2	<i>M. monticola</i> Mesa muhly	Agr	Uncom
Mupa	<i>M. pauciflora</i> P New Mexico muhly	Agr	Culms wiry; uncom
Mupo-1	<i>M. porteri</i> P Bush muhly	Agr	Culms, brittle, usually under shrubs; uncom
Muri-3	<i>M. rigens</i> P Deergrass	Agr	Base hard, stiff erect plant, large bunch- grass, moist sites; com
Muwo	<i>M. wolfii</i> A Red muhly	Agr	Culms spreading; uncom
Paar	<i>Panicum arizonicum</i> A Arizona panicum	Pan	Uncom
Paca	<i>P. capillare</i> A Common witchgrass	Pan	Com
Paha	<i>P. hallii</i> P Halls panicum	Pan	Uncom

Grasses (Gramineae)—Continued

Species abbr.	Scientific and common name and duration ¹	Tribe ²	Distinguishing characteristics and relative abundance ³
Pahi	<i>P. hirticaule</i> A Roughstalk witchgrass	Pan	Culms simple; com
Pahu	<i>P. huachucae</i> P Huachuca panicum	Pan	Uncom
Paob	<i>P. obtusum</i> P Vine-mesquite	Pan	Lengthy stolons; uncom
Pasc	<i>P. scribnerianum</i> P Scribner panicum	Pan	Uncom
Past-1	<i>P. stramineum</i> A Sonora witchgrass	Pan	Uncom
Pavi*	<i>P. virgatum</i> P Switchgrass	Pan	Rhizomatous; uncom
Past-2	<i>Paspalum stramineum</i> P Sand paspalum	Pan	Plant yellowish-green; uncom
Phtu*	<i>Phalaris tuberosa</i> P Bulb canarygrass	Pha	Bulbous base; uncom
Pobi-1	<i>Poa bigelovii</i> A Bigelow bluegrass	Fes	Uncom
Pobu	<i>P. bulbosa</i> P Bulbous bluegrass	Fes	Bulbous base; uncom
Polo-1	<i>P. longiligula</i> P Longtongue mutton bluegrass	Fes	Com
Pomo	<i>Polypogon monspeliensis</i> A Rabbitfoot polypogon	Agr	Moist sites; uncom
Scba-2*	<i>Schismus barbatus</i> A Mediterranean grass	Ave	Uncom
Sema	<i>Setaria macrostachya</i> P Plains bristlegrass	Pan	Uncom
Sihy	<i>Sitanion hystrix</i> P Bottlebrush squirreltail	Hor	Cool season grower, mostly north slopes; com
Soha	<i>Sorghum halepense</i> P Johnson grass	And	Rhizomatous; roadsides, swales; uncom
Spob	<i>Sphenopholis obtusata</i> P Prairie wedgescale	Ave	Wet sites; uncom

Grasses (Gramineae)—Continued

Species abbr.	Scientific and common name and duration ¹	Tribe ²	Distinguishing characteristics and relative abundance ³
Spco	<i>Sporobolus contractus</i> P Spike dropseed	Ave	Com
Spcr	<i>S. cryptandrus</i> P Sand dropseed	Ave	Com
Stne	<i>Stipa neomexicana</i> P New Mexico feathergrass	Agr	Plumose awn; com
Stsp-2	<i>S. speciosa</i> P Desert needlegrass	Agr	Awn plumose at base; com
Trca-1	<i>Trichachne californica</i> P Arizona cottontop	Pan	Knotty-wooly base; uncom
Trmu	<i>Tridens muticus</i> P Slim tridens	Fes	Uncom
Trpi †	<i>T. pilosus</i> P Hairy tridens	Fes	Uncom
Trpu †	<i>T. pulchellus</i> P Fluffgrass	Fes	Rosette growth form; uncom

Forbs and Grasslike Plants

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Abin	<i>Abutilon incanum</i> P Indianmallow abutilon	Malv	O, Y, leaves thick, woolly; com
Abpa	<i>A. parvulum</i> P Little abutilon	Malv	P, leaves thin, sparse hairs, dark green above; com
Acne	<i>Acalypha neomexicana</i> A New Mexico copperleaf	Euph	RW, nettle-like, erect; com
Acmi	<i>Achillea millefolium</i> P Yarrow	Comp	Leaves pinnate, aromatic; com
Alin	<i>Allionia incarnata</i> P Trailing allionia	Nyct	P, Pu, stems prostrate and trailing; com
Alpu	<i>A. pumila</i> P Dwarf allionia	Nyct	P, Pu, decumbent to prostrate, pubes- cent; uncom
Alma	<i>Allium macropetalum</i> P Largeflowered onion	Lili	Ro-Pu to nearly W, scapose, EG; uncom
Alpa	<i>A. palmeri</i> P Palmer's onion	Lili	Ro-Pu to nearly W, scapose, EG; com
Amfi	<i>Amaranthus fimbriatus</i> Fringed amaranth	Amara	V, upright, few branches, sparse leaves; com
Amgr	<i>A. graecizans</i> A Tumbleweed amaranth	Amara	BGr, purplish, prostrate, much branched stems; com
Amps	<i>Ambrosia psilostachya</i> P Western ragweed	Comp	Y, running rootstocks; com
Amin	<i>Amsinckia intermedia</i> A Fireweed fiddleneck	Bora	Y, O, bristly erect herbs, fruit a nutlet, flowers in scorpioid cymes; uncom
Antu	<i>Anemone tuberosa</i> P Tuber anemone	Ranu	P, Pu, erect scape-like stems, leaves basal tuberlike root; uncom
ANTE	<i>Antennaria</i> spp. P Pussytoes	Comp	W, dwarf, tomentose, stoloniferous, leaves mostly in basal rosette; uncom

¹See appendix 2 for explanation of family abbreviations.

²See appendix 3 for abbreviations and definitions (flower color not noted when flowers are inconspicuous).

*Introduced species.

†Indicates the specific name has been changed since Kearney and Peebles (1960) and Hitchcock (1960) were printed; new names for these species are presented in appendix 7.

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Apme	<i>Apocynum medium</i> P Dogbane	Apoc	P, erect-leafy stems; uncom
Aqch	<i>Aquilegia chrysantha</i> P Golden columbine	Ranu	Y, large, showy flowers, wet sites; uncom
Arpe	<i>Arabis perennans</i> P Perennial rockcress	Cruc	P-Pu, woody foot at the base of plant; uncom
Arva	<i>Arceuthobium vaginatum</i> Southwestern dwarf mistletoe	Lora	Without chlorophyll, parasitic on con- fiers; com
Ardo-2	<i>Arenaria douglasii</i> A Douglas sandwort	Cary	W-Cr, much branched from near base, tufted; com
Arfe-2	<i>A. fendleri</i> P Fendler sandwort	Cary	W-Cr, plants bluish green, grasslike plant; com
Arsa	<i>A. saxosa</i> P Rock sandwort	Cary	W-Cr, plants compact, stems matted; uncom
Arin	<i>Argemone intermedia</i> P Plains pricklepoppy	Papa	W, yellow sap, plants prickly; com
Arwa	<i>Aristolochia watsoni</i> P Watson dutchmanspipe	Aris	G, Br-Pu, trailing stems from a thick root, leaves purplish; uncom
Arca-4	<i>Artemisia carruthii</i> P Carruth sagebrush	Comp	Y, leaves tomentose, aromatic; com
Ardr-2	<i>A. dracunculoides</i> P Falsetarragon sagebrush	Comp	W, cr, non-aromatic; com
Arlu	<i>A. ludoviciana</i> P Louisiana sagebrush	Comp	Cr, plant tomentose, aromatic; uncom
Arpa	<i>A. pacifica</i> P Artemisia	Comp	Ruse, EG-hairy, non-aromatic; com
Asas	<i>Asclepias asperula</i> P Milkweed	Ascl	Cr, Y, sap milky; com
Asca †	<i>A. capricornu</i> P Antelope-horns	Ascl	GY and MA, sap milky, stems decum- bent; com
Assu-1	<i>A. subverticellata</i> P	Ascl	GW, stems leafy, sap milky; uncom
Astu	<i>A. tuberosa</i> P Butterfly milkweed	Ascl	O or Sc, stems leafy; uncom
Asar-2	<i>Aster arenosus</i> P Sand aster	Comp	W, cr; com

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Asbi-2 †	<i>A. bigelovii</i> A Bigelow aster	Comp	La, Pu, stems glandular-hispid; com
Asex	<i>A. exilis</i> A Bag aster	Comp	P, Pu, along streams, succulent; uncom
Asta-2 †	<i>A. tagetinus</i> P Arizona aster	Comp	Pu; com
Asta-1 †	<i>A. tanacetifolius</i> P Tansyleaf aster	Comp	Pu; com
Asci*	<i>Astragalus cicer</i> Cicer milkvetch	Legu Papil	Pu; uncom
Asle-3	<i>A. lentiginosus</i> P Specklepod loco	Legu Papil	V, prostrate; com
Asno	<i>A. nothoxys</i> P Sheep loco	Legu Papil	Pu, prostrate, pubescent; com
Asnu	<i>A. nuttallianus</i> A Nuttall loco	Legu Papil	La, Pu, leaves pubescent above; com
Aste	<i>A. tephrodes</i> P Towline loco	Legu Papil	Pu, spreading, erect, higher elevations; uncom
Aswo	<i>A. wootoni</i> A Wooton loco	Legu Papil	Stems decumbent at base, then ascend- ing, leafy, inflated mottled pods; com
Atpu	<i>Athysanus pusillus</i> A Tiny athysanus	Cruc	Y, small, pubescent, stems thread-like; com
Bach †	<i>Baeria chrysostoma</i> A Branchy goldfields	Comp	Y, low, slender plants; com
Babi	<i>Bahia biternata</i> P Chaparral bahia	Comp	Y, stems glandular; com
Bamu	<i>Baileya multiradiata</i> P Desert bailey (Desert marigold)	Comp	Y, plants gray, tomentose; com
Boco-1	<i>Boerhaavia coccinea</i> P Scarlet spiderling	Nyct	Pu-R, long trailing stems, viciid band around internodes; com
Boin-1	<i>B. intermedia</i> A Desert spiderling	Nyct	W-P, stems decumbent or erect, spreading; com
Bosp	<i>B. spicata</i> A Spike spiderling	Nyct	W-P, stems villous; com

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Bohi	<i>Bommeria hispida</i> P Rock fern	Polyp	Fern, EG, segments pilose above; com
Boin-2	<i>Bowlesia incana</i> A Creeping bowlesia	Umbe	GW, suberect to prostrate; com
Brju*	<i>Brassica juncea</i> A or biA Indian mustard	Cruc	Y, leaves in rosette; com
Brni*	<i>B. nigra</i> A or biA Black mustard	Cruc	Y, stems hairy; com
Cafl-2	<i>Calochortus flexuosus</i> P Weakstem mariposa	Lili	Li, bulbous, decumbent; com
Cagu	<i>C. gunnisoni</i> P Gunnison mariposa	Lili	W-LaPu-Y, bulbous; com
Cake	<i>C. kennedyi</i> P Desert mariposa	Lili	Y, Sc, O, bulbous; com
Cabu	<i>Capsella bursapastoris</i> A Shepherds-purse	Cruc	W, root leaves in a rosette, seed pod wedge shaped; uncom
Caat	<i>Carex athrostachya</i> P Slenderbeak sedge	Cype	The leaves of all <i>Carex</i> are triangular in cross section and the plants are grasslike; uncom
Cabo	<i>C. bonplandii</i> P	Cype	Uncom
Cage	<i>C. geophila</i> P Dryland sedge	Cype	Uncom
Capr	<i>C. praegracilis</i> P Silver sedge	Cype	Uncom
Case-2	<i>C. serratodens</i> P Sawtooth sedge	Cype	Uncom
Casu	<i>C. subfusca</i> P Sedge	Cype	Uncom
Cath	<i>C. thurberi</i> P Sedge	Cype	Uncom
Caco-1	<i>Cassia covesii</i> P Hairy senna	Legu Caesa	Y, pubescent; com
Cale-4	<i>C. leptadenia</i> A Slender senna	Legu Caesa	Y, pubescent; com

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Cach	<i>Castilleja chromosa</i> P Showy paintbrush	Scro	Sc, O, plant grayish, stiff hairy herbage; uncom
Caco-3	<i>C. confusa</i> P Common paintbrush	Scro	R; com
Cain-2	<i>C. integra</i> P Wholeleaf paintedcup	Scro	Sc, leaves smooth above, hairy below; uncom
Cali-1	<i>C. linariaefolia</i> A Wyoming paintbrush	Scro	R, Y, leaves thread-like; uncom
Cami-4	<i>C. minor</i> A Little paintbrush	Scro	R, found around springs or brooks; com
Cami-1	<i>Caucalis microcarpa</i> P False-carrot	Umbe	W, hairy herbage, umbelliferous; uncom
Chfe-1	<i>Cheilanthes feei</i> Fee lipfern	Polyp	Fern; uncom
Chfe-2	<i>C. fendleri</i> P Fendler lipfern	Polyp	Fern; uncom
Chpa	<i>C. parryi</i> P	Polyp	Fern, EG—segments hairy above, white villous below; uncom
Chwo	<i>C. wootoni</i> Wooten lipfern	Polyp	Fern of rock ledges; uncom
Chfr	<i>Chenopodium fremontii</i> Fremont goosefoot	Chen	G, a prominent plant after fire; com
Chgr	<i>C. graveolens</i>	Chen	G, somewhat spinescent; uncom
Chbr	<i>Chorizanthe brevicornu</i> A Horned chorizanthe	Polyp	W, leaves in basal rosette, not persistent, prickly, yellowish; uncom
Ciar	<i>Cirsium arizonicum</i> P Arizona thistle	Comp	W, leaves prickly, plant grayish, rocky slopes; uncom
Cine	<i>C. neomexicanum</i> P Lavender thistle	Comp	La, leaves prickly, plant grayish; com
Clлу	<i>Cleome lutea</i> A Yellow spiderflower	Capp	Y, ill-smelling, erect, along streams; uncom
Clse	<i>C. serrulata</i> A Bee spiderflower	Capp	PuP or W, erect, tall, roadsides; uncom

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Clrh	<i>Clarkia rhomboidea</i> A Polkadot clarkia	Onag	Ro Pu; uncom
Clli	<i>Clematis ligusticifolia</i> P Western virginsbower	Ranu	Cr, climbing, woody base; uncom
Cogr	<i>Collomia grandiflora</i> A Bigflower collomia	Pole	Cr, P, A, flowers in dense terminal heads; com
Coli-1	<i>C. linearis</i> A Slenderleaf collomia	Pole	Pu, P, W, flowers in dense terminal heads; com
Copa-2	<i>Comandra pallida</i> P Common comandra	Sant	W, P, root parasite, flower urn-shaped; uncom
Come †	<i>Conopholis mexicana</i> P Squaw root	Orob	Br, parasite, roots of pine, cypress, oak and walnut, without chlorophyll; uncom
Coin	<i>Convolvulus incanus</i> P Nebraska glorybind	Conv	P, Pu, stems trailing, climbing vine; uncom
Coli-2	<i>C. linearilobus</i> P Narrowleaf bindweed	Conv	P, W, vine, stems trailing, climbing; uncom
Coco	<i>Conyza coulteri</i> P Conyza	Comp	W, broomlike; uncom
Coau	<i>Corydalis aurea</i> biA Golden corydalis	Papa	Y, uncom
Crfe	<i>Cryptantha fendleri</i> A	Bora	W, slender plant; com
Crne	<i>C. nevadensis</i> A Nevada hiddenflower	Bora	Y, stiff hairs on stems; uncom
Cudi	<i>Cucurbita digitata</i> P Finger gourd	Cucu	Y, trailing stems, thick root, rough, hairy foliage; uncom
Cuum	<i>Cuscuta umbellata</i> P Dodder	Conv	W, parasitic, with twining stems, vine, without chlorophyll; com
Cybu	<i>Cymopterus bulbosus</i> P Chimaya	Umbel	W, leaves basal, long taproot, cool sea- son plant; uncom
Cyst-2	<i>Cyperus strigosus</i> P Tall flatsedge	Cype	Grass-like, stems triangular in cross section, moist sites; uncom

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Cyfr	<i>Cystopteris fragilis</i> P Brittle bladderfern	Polyp	Deciduous fern; uncom
Dame †	<i>Datura meteloides</i> P Sacred datura (jimson weed)	Sola	W, unpleasant odor, erect, fruit prickly; uncom
Dapu	<i>Daucus pusillus</i> A Southwestern carrot	Umbe	W, carrot-like; uncom
Deam	<i>Delphinium amabile</i> P Lonely larkspur	Ranu	B, leaves mostly basal; uncom
Deob	<i>Descurainia obtusa</i> A Tansy mustard	Cruc	Y, erect, pinnate leaves; com
Depi	<i>D. pinnata</i> A Pinnate tansymustard	Cruc	Y, tall, straight, grayish, leaves sparse, fruits resemble cigars; com
Deso	<i>D. sophia</i> A Flixweed tansymustard	Cruc	Y; uncom
Deco	<i>Desmanthus cooleyi</i> A James bundleflower	Legu Mimos	W, stems decumbent or spreading; uncom
Depr	<i>Desmodium procumbens</i> A	Legu Papil	Pu, prostrate, spiderlike; com
Dipu	<i>Dichelostemma pulchellum</i> P Purplehead grassnuts	Lili	BV, stems naked, all leaves arise from bulb; com
Diwi	<i>Dithyrea wislizeni</i> Spectacle pod	Cruc	W, grayish or whitish plant, fruits re- semble spectacles; com
Drbr	<i>Draba brachycarpa</i> A Shortpod draba	Cruc	W, winter annual, stems leafy; com
Drcu	<i>D. cuneifolia</i> A Wedgeleaf draba	Cruc	W, winter annual, upper stems bare; uncom
Drre	<i>D. reptans</i> A Carolina draba	Cruc	W, winter annual, upper stems bare; uncom
Ecco-2	<i>Echeveria collomae</i> P Collom echeveria	Cras	R, stems scopose, succulent, leaves in rosette; uncom
Ectr	<i>Echinocereus triglochidiatus</i> P Claretcup echinocereus	Cact	Sc or Cr, spines not hooked; uncom
Ecwr	<i>Echinopepon wrightii</i> A Spinycucumber	Cucu	W, slender climbing stems, fruit spiny; uncom

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Empe	<i>Emmenanthe penduliflora</i> Whispering bells	Hydr	Cr, herbage villous and glandular; uncom
Epmi	<i>Epilobium minutum</i> A Little fireweed	Onag	W or La, exfoliating epidermis, dry sites; uncom
Erdi-3	<i>Eriastrum diffusum</i> A Woolly eriastrum	Pole	B-W, flowers cobwebby with long white hairs; uncom
Erca-2 †	<i>Erigeron canadensis</i> A Horseweed fleabane	Comp	Y, tall rank plants along channels; com
Erco-2	<i>E. concinnus</i> P Hairy fleabane	Comp	B, La, W, yellow center, low plants, leaves basal; com
Erdi-2	<i>E. divergens</i> A or biA Spreading fleabane	Comp	B, P, W, plant low and spreading, cov- ered with soft hairs; com
Erf1-1	<i>E. flagellaris</i> A or biA Trailing fleabane	Comp	W, upright stem base, leaflets on run- ners arising from base; com
Erne-2	<i>E. neomexicanus</i> P New Mexican fleabane	Comp	W; com
Erpr	<i>E. pringlei</i> P Pringle fleabane	Comp	W, P, B, stems densely pubescent; uncom
Erce	<i>Eriogonum cernuum</i> A Nodding eriogonum	Polyg	St, Co, leaves basal; com
Erde	<i>E. densum</i> A Bunch eriogonum	Polyg	St, Co, plants spreading, low growing; com
Erni	<i>E. nidularium</i> A or biA Birdnest eriogonum	Polyg	St, Co, intricate, incurved branches; uncom
Erph	<i>E. pharnaceoides</i> A or biA Wirestem eriogonum	Polyg	St, Co, leaves white lanate beneath; com
Erth	<i>E. thurberi</i> A Thurber eriogonum	Polyg	St, Co, leaves basal, delicate plant; uncom
Ervi	<i>E. vimineum</i> A Broom eriogonum	Polyg	St, Co, few branched, naked stems; com
Erla	<i>Eriophyllum lanosum</i> A Woolly daisy	Comp	Y, woolly leaves; uncom
Erci-1	<i>Erodium cicutarium</i> A Filaree	Gera	V, winter annual, prostrate to rosette. corkscrew-like tails on the fruit; com

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Erte	<i>E. texanum</i> A Texas heronbill	Gera	V, Pu, winter annual, prostrate to rosette; uncom
Erca-5	<i>Erysimum capitatum</i> A Coast erysimum	Cruc	Y, O, Ma, fruit straight erect pods, her- bage with harsh pubescence; com
Esme	<i>Eschscholtzia mexicana</i> A Mexican poppy	Papa	YO, spring annual; uncom
Euhe-2	<i>Eupatorium herbaceum</i> P White thoroughwort	Comp	W, common after fire, plant fragrant when dry; com
Euar	<i>Euphorbia arizonica</i> P Arizona spurge	Euph	Ro, red glands, leaves red tipped, most <i>Euphorbia</i> have milky juice; com
Euca	<i>E. capitellata</i> P Head euphorbia	Euph	W, low spreading plant; com
Eude	<i>E. dentata</i> A Toothed euphorbia	Euph	Ro, erect plant, stems solitary; com
Eufl	<i>E. florida</i> A Flowery euphorbia	Euph	Vi, coarse plant, erect; uncom
Euin	<i>E. incisa</i> P Fringed euphorbia	Euph	Y, stems slender—numerous leaves reddish; com
Eume	<i>E. melanadenia</i> P Dark euphorbia	Euph	W, Cr, may be prostrate or low spread- ing; uncom
Eure	<i>E. revoluta</i> A	Euph	Y, low spreading, weak stems; uncom
Euse-2	<i>E. serpyllifolia</i> A Thymeleaf euphorbia	Euph	St, low spreading; uncom
Euse-3	<i>E. setiloba</i> A Yuma euphorbia	Euph	W, Cr, prostrate; com
Evar	<i>Evolvulus arizonicus</i> P Arizona evolvulus	Conv	B, W, hairy herbage, erect plant; uncom
Frbr	<i>Fragaria bracteata</i> P Bracted strawberry	Rosa	W, low growing with short rootstocks and long runners; uncom
Frco †	<i>Franseria confertiflora</i> P Western bursage	Comp	Uncom
Fuhe	<i>Funastrum heterophyllum</i> P Vine milkweed	Ascl	Pu, climbing twining; uncom

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Gawr-1	<i>Galactia wrightii</i> P Wright milkpea	Legu Papil	Pu, Gw, long twining stems; uncom
Gaap	<i>Galium aparine</i> A Catchweed bedstraw	Rubi	Y, palmate leaves; com
Gami	<i>G. microphyllum</i> A	Rubi	Y, stems grooved and angled, the angles whitish, palmate leaves; com
Gapr	<i>G. proliferum</i> A Bedstraw	Rubi	Y, stems angled, weak and reclining or leaning on other plants; uncom
Gagr	<i>Gaura gracilis</i> P	Onag	RW, low, much branched plant; uncom
Gapa	<i>G. parviflora</i> A or biA Smallflower gaura	Onag	P, winter grower, tall plant with soft villous hairs; uncom
Geca-2	<i>Geranium carolinianum</i> A or BiA Carolina geranium	Gera	P, leaves palmately lobed, plants pilose, flowers pink, thick caudex; uncom
Geca-3	<i>G. caespitosum</i> P Cranesbill	Gera	Pu, downy, erect and horizontal stems; com
Geer	<i>G. eremophilum</i> P Solitary geranium	Gera	P, La, leaves palmately lobed, stems usually decumbent; uncom
Giag †	<i>Gilia aggregata</i> P Skyrocket gilia	Pole	R, stems erect; com
Gigi	<i>G. gilioides</i> A Common gilia	Pole	B, V, along streams; com
Gimu	<i>G. multiflora</i> P Woody gilia	Pole	B, La, plant pubescent; uncom
Gisi	<i>G. sinuata</i> A Sky gilia	Pole	W, P, stems erect, scape-like; com
Gite	<i>G. tenuiflora</i> A Slenderflower gilia	Pole	PuP, stems erect, scape-like; uncom
Gnwr	<i>Gnaphalium wrightii</i> P Wright cudweed	Comp	Y, gray—woolly leaves in basal rosette, EG; com
Hacu †	<i>Happlopappus cuneatus</i> P Wedgeleaf goldenweed	Comp	Y, thread-like leaves; com
Hagr †	<i>H. gracilis</i> P	Comp	Y, spatula shaped leaves, leaf tips and phyllaries spinescent tipped; uncom

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Hedr	<i>Hedeoma drummondii</i> P Drummond falsepennyroyal	Labi	V, slightly decumbent at base, covered with fine white hairs; uncom
Heob	<i>H. oblongifolium</i> P Longleaf falsepennyroyal	Labi	V, plant erect, stiff stems; uncom
Hean	<i>Helianthus annuus</i> A Common sunflower	Comp	Y, coarse up to 6 ft tall; com
Hecu	<i>Heliotropium curassavicum</i> Quail plant	Bora	Pu, very succulent, moist sites;
Hemi	<i>Hemicarpha micrantha</i> A Dwarfsedge	Cype	Small, dwarfy, slender-tufted stems, along streams, grass-like; uncom
Hesu	<i>Heterotheca subaxillaris</i> A Camphor-weed	Comp	Y, large and coarse; com
Heea	<i>Heuchera eastwoodiae</i> P Eastwood alumroot	Saxi	G, Y, woody scaly candex, leaves mostly basal; uncom
Hode †	<i>Hoffmanseggia densiflora</i> A Indian rushpea	Legu Caesa	Y, flower stems scape, creeping rootstocks; com
Hodr	<i>H. drepanocarpa</i> P Sicklepod rushpea	Legu Caesa	Y, thick woody taproot; com
Hywr	<i>Hymenothrix wrightii</i> A	Comp	W, hairy, glandular; uncom
Ipba	<i>Ipomoea barbatisepala</i> A	Conv	P, often common after fire, twining stems, climbing on shrubs, trumpet shaped flowers; uncom
IpcO	<i>I. coccinea</i> P Scarlet starglory	Conv	Sc, twining stems, trumpet shaped flowers; com
IpcO-1	<i>I. costellata</i> A	Conv	V, stems erect, trumpet shaped flowers; uncom
Iphi	<i>I. hirsutula</i> A Mexican morningglory	Conv	V, twining stems, trumpet shaped flow- ers; com
Ipth	<i>I. thurberi</i> P	Conv	Pu, twining stems; com
Jagr	<i>Janusia gracilis</i> P Slender janusia	Malp	Y, twining stems; com

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Jubu	<i>Juncus bufonius</i> A Toad rush	Junc	G, Br, along streams, grass-like, stems hollow; uncom
Juin	<i>J. interior</i> P Inland rush	Junc	G, Br, along streams, grass-like, stems hollow; uncom
Jusa	<i>J. saximontanus</i> P Rocky Mountain rush	Junc	G, Br, along streams, stems hollow; uncom
Kagr	<i>Kallstroemia grandiflora</i> Arizona poppy caltrop	Zygo	O, prostrate, seeds horned; com
Kapa	<i>K. parviflora</i> A	Zygo	YO, prostrate, seeds horned; com
Lagr	<i>Lactuca graminifolia</i> A Wild lettuce	Comp	B, Pu, leaves in rosette; com
Lagr-1	<i>Lathyrus graminifolius</i> P Grassleaf peavine	Legu Papil	W, P, Or, trailing or climbing, 4-sided stems; uncom
Lala	<i>L. laetivirens</i> P Aspen peavine	Legu Papil	O, vine, trailing or climbing, 4-sided stems; uncom
Lagl	<i>Layia glandulosa</i> Whitedaisy tidytip	Comp	W, low plants, bristly leaves; uncom
Lede	<i>L. densiflorum</i> A Peppergrass	Cruc	W, diffusely branched; com
Leme	<i>Lepidium medium</i> A or biA Common peppergrass	Cruc	W, erect, soft pubescence; com
Lefe	<i>Lesquerella fendleri</i> P Fendler bladderpod	Cruc	Y, leaves mostly basal, fruit inflated; com
Liau	<i>Linanthus aureus</i> A Yellow trumpet	Pole	Y, spring annual, diffusely branched; uncom
Libi	<i>L. bigelovii</i> A Painted trumpet	Pole	Cs, erect plant, covered with a mealy down, scapelike; uncom
Lite-2	<i>Linaria texana</i> A or biA Texas toadflax	Scro	B, erect; uncom
Lile	<i>Linum lewisii</i> P Lewis flax	Lina	B; uncom
Liin	<i>Lithospermum incisum</i> P	Bora	Y, trumpet shaped flowers; uncom
Loca	<i>Lobelia cardinalis</i> P Cardinal flower	Camp	R, RY, erect; uncom

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Lone	<i>Lomatium nevadense</i> P	Umbe	W, scapose; uncom
Lohu	<i>Lotus humistratus</i> A Foothill deervetch	Legu Papil	Y, O, decumbent or prostrate; uncom
Lopu	<i>L. purshianus</i> A Spanish clover	Legu Papil	W-P, erect; com
Losa	<i>L. salsuginosus</i> A Prostrate deervetch	Legu Papil	Y, O, decumbent or prostrate; uncom
Loto	<i>L. tomentellus</i> A Desert deervetch	Legu Papil	Y, O, decumbent or prostrate; com
Lowr	<i>L. wrightii</i> A Wright deervetch	Legu Papil	Y, O, stems limber, drooping; com
Lubi	<i>Lupinus bicolor</i> A Bicolor lupine	Legu Papil	VB and W, spring annual, herbage villous; com
Luco	<i>L. concinnus</i> A or biA Bajada lupine	Legu Papil	Pu, spring annual, villous; uncom
Lupa-2	<i>L. palmeri</i> Palmer lupine	Legu Papil	V, stems densely pubescent; com
Lusp	<i>L. sparsiflorus</i> A or biA Coulter lupine	Legu Papil	VB, W, winter grower, not succulent, green when dry; com
Lusu	<i>L. succulentus</i> A or biA Arroyo lupine	Legu Papil	VB, unusually large root nodules; uncom
Lyju	<i>Lygodesmia juncea</i> P Rush skeletonplant	Comp	P, Ro, leaves basal, grasslike, milky sap; uncom
Lyca	<i>Lythrum californicum</i> P California loosestrafe	Lyth	RoPu, stoloniferous, stems erect, exfoliating bark; uncom
Macl	<i>Malacothrix clevelandi</i> A Cleveland desertdandelion	Comp	Y, W, milky sap; com
Magl-2	<i>M. glabrata</i> A Smooth desertdandelion	Comp	Y, W, milky sap; uncom
Mane	<i>Malva neglecta</i> A or biA Running mallow	Malv	W, P, prostrate; uncom
Magi	<i>Marah gilensis</i> P	Cucu	Annual vine from large perennial tuber; uncom

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Maso	<i>Margaranthus solanaceus</i> A Littlecup groundcherry	Sola	GY, Pu, fruit, many-seeded globose berry; uncom
Maan	<i>Maurandya antirrhiniflora</i> P False snapdragon	Scro	VPu or carmine, climbing, twining; uncom
Mele	<i>Melampodium leucanthum</i> P Plains blackfoot	Comp	W, half shrub-like; com
Meof	<i>Melilotus officinalis</i> P Yellow sweetclover	Legu Papil	Y; com
Meal-2	<i>Mentzelia albicaulis</i> A Whitestem mentzelia	Loas	Y, small, leafy, often decumbent, leaves adhere to clothing; com
Meni-2	<i>M. nitens</i> A Showy stickleaf	Loas	Y, leaves adhere to clothing; uncom
Mepu †	<i>M. pumila</i> A or biA Golden stickleaf	Loas	Y, leaves adhere to clothing, twisted grayish stems; com
Mili	<i>Microseris linearifolia</i> A Narrowleaf microseris	Comp	W, Ro, La, scape-like, small, spreading; com
Migr	<i>Microsteris gracilis</i> A Slender microsteris	Pole	W, Ro, La, small, spreading, glandular; uncom
Migu	<i>Mimulus guttatus</i> P Common monkeyflower	Scro	Y, from rootstocks or stolons, erect, along streams, pubescent; uncom
Mina	<i>M. nasutus</i> A	Scro	Y, along streams; uncom
Mipi	<i>M. pilosus</i> A Hairy monkeyflower	Scro	Y, along streams; uncom
Miru	<i>M. rubellus</i> A	Scro	Y, R, along streams; uncom
Mibi-2	<i>Mirabilis bigelovii</i> P Weakstem four-o'clock	Nyct	B, P, Pu, weak stemmed plant; com
Mimu	<i>M. multiflora</i> P Colorado four-o'clock	Nyct	R, Pu, stems and leaves downy; com
Mopa	<i>Moldavica parviflora</i> A or biA American falsedragonhead	Labi	B, Pu; uncom
Moce	<i>Mollugo cerviana</i> A	Aizo	W, stems erect; uncom
Move	<i>M. verticillata</i> A Carpetweed	Aizo	W, stems prostrate, mat forming; uncom

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Mome	<i>Monarda menthaefolia</i> P Mintleaf beebalm	Labi	La, RoP, leaves hairy upper side, leaf bracts pink tinted; uncom
Mope-1	<i>Montia perfoliata</i> A Minerslettuce	Port	W, leaves form saucershaped disk around stem, runners, only 2 leaves per stem; uncom
Myar	<i>Myosurus aristatus</i> A Bristly mouseltail	Ranu	G, Y, dwarf plant, leaves basal, along streams; uncom
Mycu	<i>M. cupulatus</i> A	Ranu	G, Y, dwarf plant, along streams, both species have tall column of pistils in center of flower; uncom
Nade	<i>Nama demissum</i> A Low nama	Hydr	PuR, leaves in rosette and at ends of branches, prostrate, hairy; uncom
Niat	<i>Nicotiana attenuata</i> Coyote tobacco	Sola	W, up to 6 ft tall, trumpet shaped flow- ers; com
Nitr	<i>N. trigonophylla</i> A Desert tobacco	Sola	W, sometimes perennial, wet sites, trumpet shaped flowers, sticky; com
Nosi	<i>Notholaena sinuata</i> P Bulb cloakfern	Polyp	EG, fern, xeric sites, rhizomatous; uncom
Nost	<i>N. standleyi</i> P Star cloakfern	Polyp	EG fern, xeric sites, rhizomatous; uncom
Note-2	<i>Nothoscordum texanum</i> P Mild wildonion	Lili	YW tinged P, similar to allium but no onion smell; uncom
Oeca-1	<i>Oenothera caespitosa</i> P Tufted eveningprimrose	Onag	W, leaves form dense tufts, flowers along them, no stems; com
Oeho	<i>O. hookeri</i> A Hooker eveningprimrose	Onag	Y, OR, with age, damp places; com
Oemi	<i>O. micrantha</i> P	Onag	Y, prostrate, hairy stems; uncom
Orfa	<i>Orobanche fasciculata</i> P Broomrape (Cancerroot)	Orob	Pu, parasite on roots of oak, without chlorophyll, downy and sticky; uncom
Ormu	<i>O. multiflora</i> P Broomrape (Cancerroot)	Orob	Pu Y, parasite on roots of oak, pine, wal- nut and cyprus, without chlorophyll, downy and sticky, uncom
Orpu-1	<i>Orthocarpus purpurascens</i> A Escobito owllover	Scro	P and Y on same plant, herbage villous; uncom

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Oxco †	<i>Oxybaphus coccineus</i> P	Nyct	R, whitish stem, thread-like leaves; com
Oxli †	<i>O. linearis</i> P	Nyct	P, glandular stems; uncom
Oxpu †	<i>O. pumilus</i> P Low oxybaphus	Nyct	P, decumbent or prostrate; com
PafI	<i>Parietaria floridana</i> A Pellitory	Urti	BrG, small plant, stems low spreading; uncom
Pape	<i>P. pensylvanica</i> A Pennsylvania pellitory	Urit	BrG, upright plant; uncom
Pain	<i>Parthenocissus inserta</i> P Virginia creeper	Vita	Climbing or trailing ends of tendrils form discs that adhere to bark, rocks, etc.; uncom
Pecy	<i>Pectis cylindrica</i> A Fetid-marigold	Comp	Y, low, horizontal spreading, hairy slender stems, dotted with glands; uncom
Pere-2	<i>Pectocarya recurvata</i> A	Bora	W, prostrate or spreading, slender stems; uncom
Pese	<i>P. setosa</i> A	Bora	W, erect; uncom
Pein	<i>Pellaea intermedia</i> P	Polyp	EG fern, rachis hairy; uncom
Pelo	<i>P. longimucronata</i> P	Polyp	EG fern; uncom
Pete	<i>P. ternifolia</i> P	Polyp	EG fern; uncom
Peba	<i>Penstemon barbatus</i> P Beardlip penstemon	Scro	Sc; com
Peea	<i>P. eatoni</i> P Eaton penstemon	Scro	Sc; uncom
Pepa-5	<i>P. parryi</i> P Parry penstemon	Scro	Sc, RoM; com
Pena †	<i>Perezia nana</i> P	Comp	LaP, V, dwarf plants, scented, stems wooly tufted at base; uncom
Pewr †	<i>P. wrightii</i> P	Comp	LaPu, cool season grower, flowers honey scented, woolly tufted at base; uncom
Phcr	<i>Phacelia cryptantha</i> A	Hydr	LaPu, B, often with QUTU; com

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Phdi-2	<i>P. distans</i> A Phacelia	Hydr	B, stems weak usually supported by other plants; uncom
Phma	<i>P. magellanica</i> P Varileaf phacelia	Hydr	W, B, hispid, bristly; uncom
Phra	<i>P. ramosissima</i> P Branching phacelia	Hydr	B, glandular pubescent, stems weak, leaning on other plants; com
Phac	<i>Phaseolus acutifolius</i> A Texas bean	Legu Papil	PuP-Pu, stems trailing; uncom
Phwr	<i>P. wrightii</i> A Wright's bean	Legu Papil	PuP, stems trailing; uncom
Phca-2	<i>Phoradendron californicum</i> P Mesquite American-mistletoe	Lora	Parasitic chiefly leguminous shrubs; com
Phco	<i>P. coryae</i> P Mistletoe	Lora	Parasitic on evergreen oaks, rarely on BEHA; com
Phfl	<i>P. flavescens</i> P Mistletoe	Lora	Parasitic on several tree species; com
Phju	<i>P. juniperinum</i> P Juniper mistletoe	Lora	Parasitic on juniper, seldom on other trees; com
Phfe	<i>Physalis fendleri</i> P Fendler groundcherry	Sola	Y, pubescent, the <i>Physalis</i> flower has a brown or purplish eye; com
Phla	<i>P. lanceifolia</i> A Lanceleaf groundcherry	Sola	W; uncom
Phlo-3	<i>P. longifolia</i> P Longleaf groundcherry	Sola	Y, creeping rootstocks; com
Phpu	<i>P. pubescens</i> A Downy groundcherry	Sola	Y, G, erect, hairy, diffusely branched, along streams; uncom
Phve	<i>P. versicolor</i> P	Sola	GY; com
Plar	<i>Plagiobothrys arizonica</i> A Arizona popcornflower	Bora	W, villous, leaves purplish; uncom
Plin	<i>Plantago insularis</i> A Desert indianwheat	Plan	W-clear, scapose, silvery, villous, leaves basal, winter annual; uncom
Plpu †	<i>P. purshii</i> A Woody indianwheat	Plan	St, scapose, silvery, villous, leaves basal, winter annual; com

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Plrh	<i>P. rhodosperma</i> A Redseed plantain	Plan	St, winter annual, scapose, hairy, along streams; uncom
Plvi	<i>P. virginica</i> A Paleseed plantain	Plan	St, silvery colored, leaves basal, winter annual, moist soils; uncom
Plca-1	<i>Platystemon californicus</i> A Creamcups	Papa	Cr, along streams, fruits resemble small ears of corn; uncom
Plca-3	<i>Plectritis californica</i> A Plectritis	Vale	P, moist soil, erect, sparsely branched; uncom
Potr-2	<i>Polanisia trachysperma</i> A Roughseed clammyweed	Capp	W, Y, shady streambeds, erect plants, herbage glandular, ill scented; uncom
Polo-2	<i>Polygala longa</i> P Milkwort	Polyg-1	YGPu, V, dainty plant; uncom
Posc	<i>Polystichum scopulinum</i> P Hollyfern	Polyp	Fern, deep shade, EG, segments 2 or 3 lobed at base; uncom
Pogr	<i>Porophyllum gracile</i> P Slender poreleaf	Comp	W, Pu, woody base, oil glands on leaves; uncom
Pool	<i>Portulaca oleracea</i> A Common purslane	Port	Y, decumbent or prostrate; com
Posu-2	<i>P. suffrutescens</i> P Shrubby portulaca	Port	Co, tuberous taproot, erect; uncom
Pogl	<i>Potentilla glandulosa</i> P Gland cinquefoil	Rosa	Y, wet sites, pubescent; uncom
Prpa	<i>Proboscidea parviflora</i> A New Mexico devilsclaw	Mart	RPu, viscid pubescent, fruit claw shaped (large), flower may be blotched with red-purple or streaked with yel- low, trailing stems; uncom
Psmo	<i>Pseudocymopterus montanus</i> P Wildcarrot	Umbe	Pu, Y, long, slender taproot; uncom
Pssp	<i>Psilostrophe sparsiflora</i> P Greenstem paperflower	Comp	Y, wooly, petals papery; uncom
Psia	<i>Psoralea lanceolata</i> P Lemon scurfpea	Legu Papil	W, branched rootstock, pubescent; com
Pste	<i>P. tenuiflora</i> P Slimflower scurfpea	Legu Papil	V, branched rootstocks, pubescent; uncom

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Ptaq	<i>Pteridium aquilinum</i> P Western bracken	Polyp	Fern, stems creeping; uncom
Raca	<i>Rafinesquia californica</i> A California desertchicory	Comp	W, very fine stems, milky juice; uncom
Rane	<i>R. neomexicana</i> A New Mexican desertchicory	Comp	W, very fine stems, milky juice; uncom
Rhte	<i>Rhynchosia texana</i> P Texas rhynchosia	Legu Papil	Y, trailing or weakly twining stems; uncom
Rucr	<i>Rumex crispus</i> P Curly dock	Polyg	PuBr, along streams, erect plants, coarse; uncom
Ruhy	<i>R. hymenosepalus</i> P Canaigre	Polyg	PuBr, sandy streambeds, erect plants, coarse; uncom
Saka* †	<i>Salsola kali</i> A Common russianthistle	Chen	P, tumbleweed; com
Saco	<i>Salvia columbariae</i> A California chia	Labi	R, tubular flower, sage smell; uncom
Saan	<i>Sanguisorba annua</i> A Prairie burnet	Rosa	No petals, delicate plant; uncom
Scpa-2	<i>Scrophularia parviflora</i> P Figwort	Scro	V, tall erect stems, higher elevations, flowers tubular, rhizomatous; uncom
Scpo-2	<i>Scutellaria potosina</i> P Skullcap	Labi	V, spreading pubescence, woolly base, flowers tubular, tufted stem; uncom
Sear	<i>Selaginella arizonica</i> P Arizona selaginella	Sela	Megaspores yellowish or chalky white, EG, mosslike; com
Sene	<i>Senecio neomexicanus</i> New Mexican groundsel	Comp	Y, woolly leaves, white woody stems, leaves often purplish; com
Sequ	<i>S. quercetorum</i> P Chaparral groundsel	Comp	Y, coarse tall, stems often purplish, hollow, leaves smooth with bases ex- tending around stem; com
Sipr-1	<i>Sida procumbens</i> P Trailing sida	Malv	OY, prostrate; uncom
Sian	<i>Silene antirrhina</i> A Sleepy silene	Cary	W, P, sticky bands around stem between upper flowers; uncom
Sila	<i>S. laciniata</i> P Mexican silene	Cary	R, higher elevations, downy weak stems, glandular; uncom

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Siir	<i>Sisymbrium irio</i> A or biA Tumblemustard	Cruc	Y, W; uncom
Sodo	<i>Solanum douglasii</i> P Douglas nightshade	Sola	B, small tomato-like fruit; com
Somi	<i>Solidago missouriensis</i> P Missouri goldenrod	Comp	Y, stems densely puberulous; com
Sosp	<i>Solidago sparsiflora</i> P Few-flowered goldenrod	Comp	Y, higher elevations; uncom
Soas	<i>Sonchus asper</i> A Prickly sowthistle	Comp	Y, coarse spiny toothed leaves, upper leaves clasping; uncom
Spec	<i>Spermolepis echinata</i> A Spermolepis	Umbe	W, rhizomatous, stems hollow; uncom
Spfe	<i>Sphaeralcea fendleri</i> Fendler globemallow	Malv	Gr, P, erect, pubescent, leaves palmate; uncom
Stco-3	<i>Stachys coccinea</i> P Texas betony	Labi	R, stems and under surfaces of leaves have long hairs, plants colonize, flower tube-like; uncom
Stme	<i>Stellaria media</i> A Chickweed starwort	Cary	W, small creeping, spreading, pubes- cent stems; uncom
Stni	<i>S. nitens</i> A Shiny starwort	Cary	W, erect slender stems; uncom
Stex	<i>Stephanomeria exigua</i> A Stick weed	Comp	Ro, much branched, basal lobes of leaves surround stem, milky sap; uncom
Stpa	<i>S. pauciflora</i> P Wirelettuce	Comp	W, P, zig-zag stems forming bushy tangles, milky sap; uncom
Stte	<i>S. tenuiflora</i> P	Comp	W, thread-like leaves which stand erect, milky sap; uncom
Thfe-2 †	<i>Thalictrum fendleri</i> P Fendler meadowrue	Ranu	W, underside of leaves downy, spread- ing; uncom
Thwr	<i>Thelypodium wrightii</i> A Wright thelypodium	Cruc	W, P, smooth white plant, erect, leaves basal; uncom
Thfe	<i>Thlaspi fendleri</i> P Candytuft	Cruc	W, stems not branched, capsules wedge-shaped, leaves clasping; uncom
Tham-2	<i>Thysanocarpus amplexans</i> A Lacepod	Cruc	P, slender, erect, leaves clasping; uncom

Forbs and Grasslike Plants—Continued

Species abbr.	Scientific and common name and duration	Family subfamily ¹	Flower color, distinguishing characteristics and relative abundance ²
Tila	<i>Tidestromia lanuginosa</i> A Wooly tidestromia	Amara	Y, prostrate, leaves white, downy; com
Toex	<i>Townsendia exscapa</i> P Stemless townsendia	Comp	W, leaves tufted or form mats, scapose; com
Troc	<i>Tradescantia occidentalis</i> P Prairie spiderwort	Comm	Ro, B, tuber-like roots; uncom
Trne-2 †	<i>Tragia nepetaefolia</i> P Noseburn	Euph	Slender, often twining, with stinging hairs; com
Trte*	<i>Tribulus terrestris</i> A Puncturevine	Zygo	Y, fruit resembles goats head, prostrate, trailing; uncom
Trgr-2	<i>Trifolium gracilentum</i> A Pinpoint clover	Legu Papil	P, RPu, flowers droop with age; uncom
Trla	<i>T. lacerum</i> Cutcollar clover	Legu Papil	W, Pu; uncom
Trpe	<i>Triodanis perfoliata</i> A Venus looking-glass	Comp	B, milky juice, bristly hairs low on stem; uncom
Tydo	<i>Typha domingensis</i> P Dominican cattail	Typh	Br, semiaquatic; uncom
Vebi	<i>Verbena bipinnatifida</i> P Dakota verbena	Verb	P, La, Pu, wavy branches which bend upward, bristly hairs, stems square; uncom
Vebr	<i>V. bracteata</i> P Bigbract verbena	Verb	W, B, V, spreading, half-shrub-like, stems square; uncom
Vewr	<i>V. wrightii</i> P Wright's verbena	Verb	P, La, Pu, rosette, hairy, stems square, often prominent after fire; com
Vepe	<i>Veronica peregrina</i> A Purslane speedwell	Scro	W, small succulent, along streams; uncom
Viex †	<i>Vicia exigua</i> P Slim vetch	Legu Papil	Pu, vine, stems 4-sided; uncom
Vian	<i>Viguiera annua</i> A Annual goldeneye	Comp	Y, tall, sparsely leaved, erect; com
Wofi	<i>Woodwardia fimbriata</i> P Giant chainfern	Polyp	EG, fern, wet sites in shade; uncom
Xasa †	<i>Xanthium saccharatum</i> A Cocklebur	Comp	W, fruits resemble porcupine eggs; uncom
Zala	<i>Zauschneria latifolia</i> Hummingbird-trumpet	Onag	Sc, exfoliating epidermis, flowers trumpet shaped; uncom

Half Shrubs

Species abbr.	Scientific and common name	Family/ subfamily	Flower color, distinguishing characteristics and relative abundance
Acan	<i>Acacia angustissima</i> Prairie acacia	Legu mimos	Cr, flowers in round heads, feathery foliage, stems hairy, not thorny, transition drier sites; uncom
Aypu	<i>Ayenia pusilla</i> Slender ayenia	Ster	Fruit a warty capsule; com
Cosc	<i>Commicarpus scandens</i> Trailing commicarpus	Nyct	YW, stems weak sometimes trailing or supported by other plants; uncom
Daal	<i>Dalea albiflora</i> Whiteflowered dalea	Legu	W, Pu with age, stems villous, herbaceous above the base; uncom
Dafo	<i>D. formosa</i> Feather dalea	Legu	Pu; uncom
Dapa †	<i>D. parryi</i> Parry dalea	Legu	Pu, W, hairy herbage; uncom
Dypo	<i>Dyssodia porophylloides</i> Smelly dysodia	Comp	OY, leaves glandular, strong odor; com
Erfa	<i>Eriogonum fasciculatum</i> Flattop eriogonum	Poly	W, P, flowers silky villous, EG, leaves pubescent; com
Erja	<i>E. jamesii</i> James eriogonum	Poly	Cr, P, flowers silky villous, long hairs on herbage, EG; uncom
Erwr	<i>E. wrightii</i> Wright eriogonum	Poly	W, P, EG; plant grayish; dom
Frde †	<i>Franseria deltoidea</i> Triangle leaf bursage	Comp	CR, EG, pubescent, fruit with hook-tipped spines, transition drier sites; com
Gafe	<i>Galium fendleri</i> Fendler galium	Rubi	W, Y, G, all galium have square stems and small star shaped flowers, leaves whorled; uncom
Garó	<i>G. rothrockii</i> Rothrock bedstraw	Rubi	Pu, leaves arranged in circles, midrib prominent beneath; uncom
Gast	<i>G. stellatum</i> Bedstraw	Rubi	Gy, stems weak, often supported by other plants, shiny white branches; com
Gawr	<i>G. wrightii</i> Wright galium	Rubi	R, Pu, midrib prominent beneath; uncom
Gusa †	<i>Gutierrezia sarothrae</i> Broom snakeweed	Comp	Y, EG, broom-like, common in overgrazed and otherwise disturbed areas; com

Half Shrubs—Continued

Species abbr.	Scientific and common name	Family/ subfamily	Flower color, distinguishing characteristics and relative abundance
Hacu †	<i>Happlopappus cuneatus</i> Wedgeleaf goldenweed	Comp	Y, leaves threadlike, transition drier sites; uncom
Hahe †	<i>H. heterophyllus</i> Jimmyweed (rayless goldenrod)	Comp	Y, odor of turpentine, leaves entire, somewhat herbaceous, transition drier sites; uncom
Hala-1 †	<i>H. laricifolius</i> Larchleaf goldenrod (turpentine brush)	Comp	Y, odor of turpentine, transition drier sites; uncom
Hasp †	<i>H. spinulosus</i> Ironplant goldenrod	Comp	Y, odor of turpentine, stiff smooth stems, leaves divided, transition drier sites; uncom
Hico	<i>Hibiscus coulteri</i> Desert rosemallow	Malv	Y, R at base, hairy, flowers on long stalks; com
Hodr	<i>Hoffmanseggia drepanocarpa</i> Sicklepod rushpea	Legu Caesa	YR, leaves twice pinnately divided, stems tufted, leaves downy; com
Hoja	<i>H. jamesii</i> Rushpea	Legu Caesa	YR, leaves downy, very woody root and base, black dots underside of leaf segments, leaves twice pinnately divided; com
Lori	<i>Lotus rigidus</i> Shrubby deervetch	Legu Papil	YO, erect; com
Mesc-1	<i>Menodora scabra</i> Rough menodora	Olea	Y, deciduous; com
Peam	<i>Penstemon ambiguus</i> Gilia penstemon	Scro	PW, P, grass-like leaves, stems form twiggy clumps; com
Pebr	<i>P. bridgesii</i> Bridges penstemon	Scro	R, flowers downy; uncom
Peli	<i>P. linarioides</i> Toadflax penstemon	Scro	B, Pu, leaves basal, may form mats; uncom
Pepa-4	<i>P. palmeri</i> Palmer penstemon	Scro	Sc, RoM; com
Peps	<i>P. pseudospectabilis</i> Desert penstemon	Scro	RoPu, whitish green leaves, upper leaves perfoliate; com
Peth	<i>P. thurberi</i> Thurber penstemon	Scro	B, Ro, long, very narrow leaves; uncom

Half Shrubs—Continued

Species abbr.	Scientific and common name	Family/ subfamily	Flower color, distinguishing characteristics and relative abundance
Phcr	<i>Physalis crassifolia</i> Physalis	Sola	Y, flower like a hanging bell, leaves thick and downy; com
PSCO	<i>Psilostrophe cooperi</i> Whitestem paperflower	Comp	Y, petals papery at maturity, white woolly plant; rare
Saam-2	<i>Salvia amissa</i> Sage	Labi	B, gray, hairy plant, leaves triangular; uncom
Selo †	<i>Senecio longilobus</i> Threadleaf groundsel	Comp	Y, gray colored; uncom
Semo	<i>S. monoensis</i> Mono groundsel	Comp	Y, very leafy; uncom
Soxa	<i>Solanum xanti</i> Purple nightshade	Sola	V, LI-Pu, stems hairy; com
Spam	<i>Sphaeralcea ambigua</i> Desert globemallow	Malv	P, W, Or, erect, pubescent, as many as 100 stems from a single root, xerophytic; com
Spem	<i>S. emoryi</i> Emory globemallow	Malv	V-P, erect, many-flowered, pubescent; uncom
Spgr-2	<i>S. grossulariaefolia</i> Gooseberryleaf globemallow	Malv	OR, pubescent, many-flowered; com
Spru	<i>S. rusbyi</i> Rusby globemallow	Malv	R, higher elevations, pubescent, thin stems; uncom
Stpi	<i>Stanleya pinnata</i> Desert princessplume	Cruc	Y, coarse plants, smooth whitish stems; uncom
Vide	<i>Viguiera deltoidea</i> Parish goldeneye	Comp	Y, leaves leathery, pubescent; uncom

Shrubs

Species abbr.	Scientific and common name	Family/ subfamily	Flower color, distinguishing characteristics and relative abundance
Acgr	<i>Acacia greggii</i> Catclaw acacia	Legu Mimos	Y, hairy stems, hooked thorns, transition desert shrub to chaparral, uncom
Agpa-3	<i>Agave parryi</i> Parry agave	Amry	GPu, bluish green leaves, scapose flowering branches, loc dom
Alwr	<i>Aloysia wrightii</i> Wright lipplia	Verb	W, B, aromatic, toothed leaves, wrinkled and bright green above, whitish below, deciduous; uncom
Amam	<i>Ambrosia ambrosioides</i> Ambrosia bursage	Comp	Cr, EG, fruit with hook-tipped spines, transition drier sites; uncom
Amba	<i>Amelanchier bakeri</i> Baker serviceberry	Rosa	W, leaves grayish green, hairy, bark smooth and ash gray. Small applelike fruits (O or Y); com
Amfr-1	<i>Amorpha fruticosa</i> Indigobush amorpha	Legu	Pu, twigs glandular, leaves hairy, along streams; uncom
Anth	<i>Anisacanthus thurberi</i> Thurber anisacanth	Acan	R, whitish, flaky bark; uncom
Arpr	<i>Arctostaphylos pringlei</i> Pringle manzanita	Eric	W, P, wooly leaves and pedicels, leaves often rounded or subcordate at base, EG, bark red; dom
Arpu-2	<i>A. pungens</i> Pointleaf manzanita	Eric	W, P, leaves pointed, not woolly, EG, pale or bluish, narrowed at base, bark red; com
Atca	<i>Atriplex canescens</i> Fourwing saltbush	Chen	Fruits 4-winged, leaves gray, salty, EG; uncom
Bagl †	<i>Baccharis glutinosa</i> Seepwillow baccharis	Comp	W, leaves toothed, found along streams; com
Basa-1	<i>B. sarothroides</i> Broom baccharis	Comp	W, plants broom-like, moist sites, leaves toothed; com
Beju	<i>Bebbia juncea</i> Rush bebbia	Comp	Y, few flowered (all terminal) rush-like branches; uncom
Baha	<i>Berberis haematocarpa</i> Red mahomia	Berb	Y, wood and innerbark yellow, EG, spring; com
Bere	<i>B. repens</i> Creeping mahonia	Berb	Y, above ground stems short, spreading rootstocks, higher elevations; com

Shrubs—Continued

Species abbr.	Scientific and common name	Family/ subfamily	Flower color, distinguishing characteristics and relative abundance
Brca-3	<i>Brickellia californica</i> California brickellia	Comp	W, deciduous, herb-like; com
Caer	<i>Calliandra eriophylla</i> Falsemesquite	Legu Mimos	P, W, straggling shrub resembling mesquite but much smaller and without spines; com
Caho	<i>Canotia holacantha</i> Canotia	Cela	Leaves small, spine tipped, deciduous scales, rush-like branches, yellow green bark; uncom
Cabi	<i>Carphochaete bigelovii</i>	Comp	Pu, low branching shrub; uncom
Cebe-1	<i>Cercocarpus betuloides</i> Birchleaf mountainmahoganny	Rosa	Y sepals, no petals, EG, leaves oval with rounded apex, wedge-shaped teeth, finely toothed above the middle, dark green above, grayish and slightly hairy beneath; com
Cebr ¹	<i>C. breviflorus</i> Wright mountainmahogany	Rosa	Y sepals, no petals, EG, leaves obovate or reverse lance shaped, a few rounded teeth near apex, hairless or slightly hairy above and pale and finely hairy beneath; com
Cefe	<i>Ceanothus fendleri</i> Fendler ceanothus	Rham	W, spiny, leaves pubescent below, EG; com
Cegr	<i>C. greggii</i> Desert ceanothus	Rham	W, leaves grayish, twigs stiff, spinelike, EG; com
Cein-1	<i>C. integriramus</i> Deerbrush ceanothus	Rham	W, leaves pale beneath, bright green above, twigs limber, EG; com
Cepa-2	<i>Celtis pallida</i> Spiny hackberry	Ulma	G, along ephemeral streams, spiny, large shrub; com
Cere	<i>C. reticulata</i> Netleaf hackberry	Ulma	G, along ephemeral streams not spiny, warty bark, large shrub or small tree; com
Ceoc	<i>Cephalanthus occidentalis</i> Common buttonbush	Rubi	W, wet sites, leaves large, opposite, in whorls of 3, uncom
Chli	<i>Chilopsis linearis</i> Desertwillow	Bign	W streaked, tinged or spotted with Pu, large shrub or small tree along ephemeral streams; uncom

¹Authors differ on whether the Arizona chaparral *Cercocarpus* species is *C. breviflorus* or *montanus*; we believe it to be *breviflorus*.

Shrubs—Continued

Species abbr.	Scientific and common name	Family/ subfamily	Flower color, distinguishing characteristics and relative abundance
Coca-3	<i>Colubrina californica</i> California colubrina	Rham	G, Y, subspinescent branches; uncom
Coly	<i>Condalia lycioides</i> Southwestern condalia	Rham	W, numerous stout spines; com
Come	<i>Cowania mexicana</i> Cliffrose	Rosa	W, Y, twigs hairy, glandular, EG, leaves white, hairy beneath; uncom
Crbi	<i>Crossosoma bigelovii</i> Bigelow crossosoma	Cros	W, rough bark; uncom
Dawh	<i>Dasyllirion wheeleri</i> Wheeler sotol	Lili	W, EG, leaves rigid with sharp curved spines; com
Dovi	<i>Dodonaea viscosa</i> Clammy hopseedbush	Sapi	Y, foliage sticky; uncom
Enfa	<i>Encelia farinosa</i> White brittlebush	Comp	Y, stems brittle, leaves hairy, gray, EG, transition drier sites; uncom
Enfr	<i>E. frutescens</i> Bush encelia	Comp	Y, stems brittle, leaves not hairy, EG, transition drier sites; uncom
Epvi	<i>Ephedra viridis</i> Green ephedra	Ephe	Leaves scales, EG; uncom
Eran-2	<i>Eriodictyon angustifolium</i> Narrowleaf yerba santa	Hydr	Li, W, leaves resinous above, hairy below, sprouts from roots as much as 2 or more meters from plant, especially following fire or other disturbance; loc dom
Fapa	<i>Fallugia paradoxa</i> Apacheplume	Rosa	W, white bark, EG, leaves green above, rusty below; loc dom
Feru-2	<i>Fendlera rupicola</i> Cliff fendlerbush	Saxi	W or tinged with PU; bark-ridged, leaves scurfy; com
Fewi	<i>Ferocactus wislizeni</i> Southwest barrelcactus	Cact	Y, EG, flowers funnelform; uncom
Fone †	<i>Forestiera neomexicana</i> New Mexican forestiera	Olea	Anthers Y, much branched giving tangled look; uncom
Fosp-2	<i>Fouquieria splendens</i> Ocotillo	Fouq	R, appears leafless, tall spindly, thorny whiplike unbranched stems, transition drier sites; uncom

Shrubs—Continued

Species abbr.	Scientific and common name	Family/ subfamily	Flower color, distinguishing characteristics and relative abundance
Fram †	<i>Franseria ambrosioides</i> Ambrosia bursage	Comp	Cr, EG, fruit with hook-tipped spines; transition drier sites; uncom
Frca	<i>Fremontia californica</i> California fremontia	Ster	Y, EG; uncom
Gafl	<i>Garrya flavescens</i> Yellowleaf silktassel	Garr	No petals, grayish-green bark and leaves, EG, stems 4-angled; loc dom
Gawr-2	<i>G. wrightii</i> Wright silktassel	Garr	No petals, EG, stems 4-angled, leaves bright green; com
Goth	<i>Gossypium thurberi</i> Thurber cotton	Malv	W, branchlets quadrangular; uncom
Hico	<i>Hibiscus coulteri</i> Desert rosemallow	Malv	Y with R basal spot, half shrub or shrub; uncom
Hodu	<i>Holodiscus dumosus</i> Rush rockspirea	Rosa	W, Cr, aromatic foliage, young twigs hairy, older bark gray brown; uncom
Hone	<i>Horsfordia newberryi</i> Newberry horsfordia	Malv	Y, yellow pubescence; uncom
Hymo	<i>Hymenoclea mongyra</i> Singlewhorl burrobrush	Comp	Uncom
Krpa	<i>Krameria parvifolia</i> Littleleaf krameria	Legu Caesa	Pu, herbage grayish, pubescent, root parasite; com
Latr	<i>Larrea tridentata</i> Coville creosotebush	Zygo	Y, EG, transition drier sites; uncom
Loin-1	<i>Lonicera interrupta</i> Chapparral honeysuckle	Capr	W, Y, stems trailing or climbing; com
Lyan	<i>Lycium andersonii</i> Anderson wolfberry	Sola	La, P, plant spiny, fruit a scarlet berry; com
Lyex	<i>L. exsertum</i> Desert wolfberry	Sola	La, plant spiny, leaves glandular, pubescent, fruit a scarlet berry; com
Lyfr	<i>L. fremontii</i> Fremont wolfberry	Sola	Pu, top growth very spiny, brittle, fruit a scarlet berry; com
MAMM	<i>Mammillaria</i> spp. Fishhook or pincushion cacti	Cact	P, Y, PW, have crossing rows of nipple- like knobs; uncom
Mibi-3	<i>Mimosa biuncifera</i> Catclaw mimosa (wait-a-minute bush)	Legu Mimos	P, W, spines wide, flat at base, recurved, mostly in pairs at the nodes, transition drier sites; uncom

Shrubs—Continued

Species abbr.	Scientific and common name	Family/ subfamily	Flower color, distinguishing characteristics and relative abundance
Nigl	<i>Nicotiana glauca</i> Tree tobacco	Sola	Y, flowers tubular, funnel form; uncom
Nomi	<i>Nolina microcarpa</i> Sachuista	Lili	W, Cr, EG, leaves lax, resembles coarse grass; com
Opac	<i>Opuntia acanthocarpa</i> Buckhorn cholla	Cact	R, Y, EG, erect plant, spines covered with a loose papery sheath, stems (joints) round; com
Opar	<i>O. arbuscula</i>	Cact	R, delicate cactus; uncom
Opbi	<i>O. bigelovii</i> Arizona jumping pricklypear	Cact	GY, EG, spines with a loose papery sheath, stems (joints) round; com
Opch	<i>O. chlorotica</i> Dollarjoint pricklypear	Cact	Y, low spreading plant, main spines yellow translucent stems (joints) yel- lowish and flattened distinct trunk; uncom
Open †	<i>O. engelmannii</i> Engelmann pricklypear	Cact	Y, EG, stems (joints) flattened, low spreading plant; com
Opfu	<i>O. fulgida</i> Sonora jumping cholla	Cact	P, W, streaks of La, erect plant, stems (joints) round, EG, appears straw col- ored because of numerous spines; uncom
Ople	<i>O. leptocaulis</i> Tesajo	Cact	BrY, EG, stems (joints) round, erect plant, spines enveloped with a loose paper sheath; uncom
Opph	<i>O. phaeacantha</i> Brown spine pricklypear	Cact	Y, EG, prostrate or decumbent, stems (joints) flat, gray green, spines not sheathed; uncom
Opps	<i>O. spinosior</i> Cane cholla	Cact	Y, R, W, P, fruits pear-shaped; erect plant, stems (joints) round; com
Pain-2	<i>Parthenocissus inserta</i> Thicket creeper	Vita	G, stems climbing or trailing, adhering discs on tendril tips; com
Pemi-2	<i>Penstemon microphyllus</i> Littleleaf penstemon	Scro	SY, flowers tubular, EG; uncom
Phmi	<i>Philadelphus microphyllus</i> Littleleaf mockorange	Saxi	W, exfoliating bark; uncom

Shrubs—Continued

Species abbr.	Scientific and common name	Family/ subfamily	Flower color, distinguishing characteristics and relative abundance
Phte	<i>Phlox tenuifolia</i> Vine phlox	Pole	Cr, in shade, climbing, leaves sparse; com
Plse †	<i>Pluchea sericea</i> Arrowweed pluchea	Comp	Pu, rank smell, silky pubescent tubular flower; uncom
Prsev	<i>Prunus serotina</i> subsp. <i>virens</i> Southwestern chokecherry	Rosa	W, semi-evergreen, attains tree size in moist situations, young bark glandular punctate; com
Ptan-1	<i>Ptelea angustifolia</i> Narrowleaf hoptree	Ruta	GY, unpleasant odor, twig bark brown or dark purple; com
Quch	<i>Quercus chrysolepis</i> Canyon live oak	Faga	Small tree, leaves entire to very spines- cent; uncom
Quchp	<i>Q. chrysolepis</i> var. <i>palmeri</i> Palmer oak	Faga	Shrub or small tree, golden tomentum on cup at base of acorns, leaves un- dulate, very prickly; com
Qutu	<i>Q. turbinella</i> Shrub live oak	Faga	EG, upper leaf surfaces dull, yellow or whitish, resinous undersides; dom
Rhca	<i>Rhamnus californica</i> California buckthorn	Rham	G, EG, fruits black, has bud scales; uncom
Rhcr	<i>R. crocea</i> Hollyleaf buckthorn	Rham	YG, EG, fruits red, no bud scales; com
Rhgl	<i>Rhus glabra</i> Smooth sumac	Anac	Leaves turn bright red in fall, EG rich soil, uncom
Rhov	<i>R. ovata</i> Sugar sumac	Anac	Cr, EG, old bark very shaggy, fruits red; com
Rhra †	<i>R. radicans</i> Poison ivy	Anac	GW, deciduous, often climbing stems, fruits yellowish white; uncom
Rhtr	<i>R. trilobata</i> Scunkbush sumac	Anac	Y, deciduous, leaves three lobed and bright red in fall; com
Ruar	<i>Rubus arizonensis</i>	Rosa	W tinged with P, prostrate (flowering branches erect), bark smooth, prickly; uncom
Rune	<i>R. neomexicanus</i> New Mexican raspberry	Rosa	W tinged with P, not prickly, bark flaky; uncom
Sabe	<i>Salix bebbiana</i> Bebb willow	Sali	Upper surface of leaves pubescent, streamsides; uncom

Shrubs—Continued

Species abbr.	Scientific and common name	Family/ subfamily	Flower color, distinguishing characteristics and relative abundance
Sich	<i>Simmondsia chinensis</i> California jojoba	Buxa	Y sepals (no petals), EG, stems brittle. Transition drier sites; uncom
SYMP	<i>Symphoricarpos</i> sp. Snowberry	Capr	P, W, fruits snow white, low spreading shrub, older bark exfoliating, higher elevations, often codominant under Gambel oak; uncom
Soel	<i>Solanum elaeagnifolium</i> Silverleaf nightshade	Sola	Pu, prickly leaves and stems, plant grayish; uncom
Sofe	<i>S. fendleri</i> Fendler potato	Sola	Pu, small potato-like tubers, moist sites; uncom
Trca-2	<i>Trixis californica</i> American trixis	Comp	Y, leaves glandular on lower surfaces; uncom
Vaca	<i>Vauquelinia californica</i> Torrey vauquelinia	Rosa	W, EG; uncom
Viar	<i>Vitis arizonica</i> Canyon grape	Vita	Stems climbing, along streams, large heart-shaped leaves; uncom
Yuba	<i>Yucca baccata</i> Datil yucca	Lili	W, EG, fruit banana shaped; com
Yuel	<i>Y. elata</i> Soaptree yucca	Lili	W, EG, has a distinct trunk, scapose flower stalk; uncom

Trees

Species abbr.	Scientific and common name	Family/ subfamily	Flower color, distinguishing characteristics and relative abundance
Acco	<i>Acacia constricta</i> Mescal acacia	Legu Mimos	OY, thorns straight, slender, white; uncom
Acgr	<i>Acer grandidentatum</i> Bigtooth maple	Acer	GY, leaves three lobed with sawtoothed edges, twigs reddish brown; com
Alob	<i>Alnus oblongifolia</i> Arizona alder	Betu	Grayish brown, scaly bark on older trunks, leaves elliptic, sawtoothed edges; uncom
Cagi	<i>Carnegiea gigantea</i> Saguaro	Cact	Tree-like cactus, EG, transition desert shrub to chaparral; uncom
Cefl	<i>Cercidium floridum</i> Blue paloverde	Legu Caesa	Y, ends of leafy branches not strongly spine-tipped, bark green, along washes, transition desert shrub to chaparral; uncom
Cemi	<i>C. microphyllum</i> Littleleaf paloverde	Legu Caesa	Y, ends of leafy branches spine-tipped, bark green, transition desert shrub to chaparral; uncom
Cuar	<i>Cupressus arizonica</i> Arizona cypress	Cupr	EG, cones gray, cone scales with a point in center; loc dom
Fran-2	<i>Fraxinus anomala</i> Single leaf ash	Olea	Y, G, 1 or 3 leaflets per leaf; uncom
Franl	<i>F. anomala</i> var. <i>lowelli</i> Lowell ash	Olea	Y, G (hairy), 2 or 3 leaflets per leaf, along streams; com
Frve	<i>F. velutina</i> Velvet ash	Olea	Y, G, 5 to 9 leaflets per leaf; uncom
Juma	<i>Juglans major</i> Arizona walnut	Jugl	Leaves red in autumn, strongly scented, 9 to 13 leaflets per leaf; com
Jude	<i>Juniperus deppeana</i> Alligator juniper	Cupr	Monecious, bark checkered, trunk branching a few feet above ground level, leaves resinous, berry mealy, bluish or brownish maturing the second year, 3 or 4 seeded; com
Jumo	<i>J. monosperma</i> One seeded juniper	Cupr	Dioecious, bark fibrous, branching at ground level, berry succulent, dark blue, maturing in one year, one seeded (or occasionally 2); com

Trees—Continued

Species abbr.	Scientific and common name	Family/ subfamily	Flower color, distinguishing characteristics and relative abundance
Juos	<i>J. osteosperma</i> Utah juniper	Cupr	Monecious, bark fibrous, branching several feet above ground level, berry mealy, brownish, maturing the second year, 1 or 2 seeded; com
Momi	<i>Morus microphylla</i> Texas mulberry	Mora	G, along streams, leaves dark green above and paler and hairy below; uncom
Pied	<i>Pinus edulis</i> Pinyon	Pina	EG conifer, 2 needles per leaf bundle or sometimes single, higher elevations; uncom
Pipo	<i>P. ponderosa</i> Ponderosa pine	Pina	EG conifer, 3 needles per leaf bundle, higher elevations; uncom
Plwr	<i>Platanus wrightii</i> Arizona sycamore	Plat	Along streams, outer bark flakes off ex- posing white inner bark, large pal- mately lobed leaves; com
Pofr-2	<i>Populus fremontii</i> Fremont cottonwood	Sali	Along streams, cottony seeds, bark gray, thick and deeply furrowed; uncom
Potr-1	<i>P. tremuloides</i> Quaking aspen	Sali	Moist sites, higher elevations, bark white, leaves golden or orange in au- tumn; uncom
Prve	<i>Prosopis velutina</i> Velvet mesquite	Legu Mimos	Y, along streams, branches spreading, straight spines in pairs, pods sweet; uncom
Psme	<i>Pseudotsuga menziesii</i> Common Douglas fir	Pina	EG conifer, needles arise singly, short stalked and flat, higher elevation trans- ition; uncom
Quar	<i>Quercus arizonica</i> Arizona white oak	Faga	EG, leaves rounded or cordate at base, dull blue-green above, densely hairy below with prominent veins, bark light gray or whitish; dom
Quem	<i>Q. emoryi</i> Emory oak	Faga	EG, leaves lance shaped with a spiny point, shiny yellow green on both sides, cordate at base, with small tuft of to- nentum on both sides of base of midrib on lower side of leaf, bark dark gray to black; dom
Quga	<i>Q. gambelii</i> Gambel oak	Faga	Only deciduous oak in Arizona chapar- ral, locally dominant of small acreages on north slopes; loc dom

Trees—Continued

Species abbr.	Scientific and common name	Family/ subfamily	Flower color, distinguishing characteristics and relative abundance
Rone-1	<i>Robinia neomexicana</i> New Mexican locust	Legu Papil	PuP, spines in pairs, 15 to 21 leaflets bristle tipped; uncom
Sago	<i>Salix goodingii</i> Gooding willow	Sali	Along streams, leaves green or yellow green on both sides; uncom
Sala-1	<i>S. laevigata</i> Red willow	Sali	Lower leaf surfaces paler than upper; uncom
Same-1	<i>Sambucus mexicana</i> Mexican elder	Capr	YW, along streams, pith makes up more than one-half the diameter of twigs, EG, dark blue berries with a bloom; uncom
Sasa	<i>Sapindus saponaria</i> Soapberry	Sapi	Along streams, fruits berry-like, yellow, translucent; uncom
Tape †*	<i>Tamarix pentandra</i> Fivestamen tamarisk (Salt cedar)	Tama	Along streams, forms thickets along drainages; uncom

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Appendix 1

Grass tribes and the page number in Hitchcock (1950) where the tribe key begins

Abbreviation	Tribe	Page
Agr	Agrostideae	313
And	Andropogoneae	737
Ave	Aveneae	280
Chl	Chlorideae	491
Fes	Festuceae	31
Hor	Hordeae	230
Pan	Paniceae	569
Pha	Phalarideae	547
Zoy	Zoysieae	482

Appendix 2

Families of grasslike plants, forbs, half-shrubs, and trees and page number in Kearney and Peebles (1960) where family key begins (subfamilies of legumes listed immediately below family name)

Abbreviation	Scientific name	Page
Acer	Aceraceae	526
Aizo	Aizoaceae	280
Amara	Amaranthaceae	264
Amary	Amaryllidaceae	191
Apoc	Apocynaceae	651
Aris	Aristolochiaceae	227
Ascl	Asclepiadaceae	655
Berb	Berberidaceae	320
Bora	Boraginaceae	707
Cact	Cactaceae	567
Camp	Campanulaceae	829
Capp	Capparidaceae	355
Capr	Caprifoliaceae	812
Cary	Caryophyllaceae	291
Chen	Chenopodiaceae	249
Comm	Commelinaceae	166
Comp	Compositae	829
Conv	Convolvulaceae	666
Corn	Cornaceae	624
Cras	Crassulaceae	358
Cruc	Cruciferae	325
Cucu	Cucurbitaceae	820
Cupr	Cupressaceae	57
Cusc	Cuscutaceae	666
	(see Convolvulaceae) ¹	
Cype	Cyperaceae	145
Euph	Euphorbiaceae	501
Faga	Fagaceae	215
Fouq	Fouquieriaceae	639
Gera	Geraniaceae	484
Hydr	Hydrophyllaceae	696
Jugl	Juglandaceae	213
Junc	Juncaceae	168
Labi	Labiatae	731

¹Kearney and Peebles do not recognize Arizona species in the Cuscutaceae family but recent changes place certain of our species in this family (Lawrence 1958).

Appendix 2—Continued

Abbreviation	Scientific name	Page
Legu	Leguminosae	395
Caesa	Caesalpinioideae	403
Mimos	Mimosoideae	395
Papil	Papillioideae	409
Lili	Liliaceae	174
Lina	Linaceae	488
Loas	Loasaceae	562
Lyth	Lythraceae	587
Malp	Malpighiaceae	497
Malv	Malvaceae	536
Mart	Martyniaceae	795
Nyct	Nyctaginaceae	270
Olea	Oleaceae	640
Onag	Onagraceae	589
Orob	Orobanchaceae	796
Oxal	Oxalidaceae	487
Papa	Papaveraceae	322
Pina	Pinaceae	50
Plan	Plantaginaceae	802
Plat	Platanaceae	371
Pole	Polemoniaceae	678
Polyg-1	Polygalaceae	497
Polyg	Polygonaceae	228
Polyp	Polypodiaceae	34
Port	Portulacaceae	285
Ranu	Ranunculaceae	304
Rham	Rhamnaceae	529
Rosa	Rosaceae	372
Rubi	Rubiaceae	805
Ruta	Rutaceae	493
Sali	Salicaceae	207
Sant	Santalaceae	226
Saxi	Saxifragaceae	361
Scro	Scrophulariaceae	761
Sela	Selaginellaceae	28
Sola	Solanaceae	748
Ster	Sterculiaceae	554
Tama	Tamaricaceae	557
Typh	Typhaceae	63
Umbe	Umbelliferae	606
Urti	Urticaceae	222
Vale	Valerianaceae	818
Verb	Verbinaceae	724
Vita	Vitaceae	534
Zygo	Zygophyllaceae	489

Appendix 3

Color and other abbreviations¹

A	Apricot	O	Orange
B	Blue	Or	Orchid
Br	Brown	P	Pink
Bz	Bronze	Pu	Purple
Co	Copper	R	Red
Cr	Cream	Ro	Rose
Cs	Crimson	S	Sulfur
Cy	Canary yellow	Sc	Scarlet
EG	Evergreen	St	Straw
G	Green	SY	Sulfur yellow
Gr	Grenadine red	V	Violet
La	Lavender	W	White, whitish
Li	Lilac	WP	Without petals
M	Magenta	Y	Yellow
Ma	Maroon		

¹Color abbreviations may be combined: GBr = greenish brown; RoPu = rose-purple, etc.

Appendix 4

Glossary

Bulbous: Possessing bulbs or bulblets.

Caudex: The combined stem and root, applied often to the thickened basal parts of stems.

Connate: Similar parts united, at least at base.

Cordate: Heart-shaped, as in leaves with indented base.

Cyme: A (usually broad and flattened) inflorescence with flowers opening successively from the center outward.

Decumbent: Reclining, then ascending.

Flaccid: Flabby, limp, lax.

Gland: A secreting structure, either borne on the surface (glandular hairs, etc.) or imbedded in the tissues, as are many oil glands.

Herb: A plant that is not woody, or not woody above ground.

Hispid: Roughly hirsute or bristly.

Mucilaginous: Moist and sticky, like mucilage.

Obtuse: With the end rounded or blunt.

Odd-pinnate: Pinnate with a single terminal leaflet.

Ovate: Flat, but having the outline of an egg and broadest below the middle.

Palmate: Lobed or veined outwardly from the base, like the fingers of a hand.

Pectinate: Comblike, having narrow, closely set teeth or divisions.

Appendix 4—Continued

Pedicel: The stalk of a single flower, or, in *Compositae*, an ultimate branch of an inflorescence, bearing a head.

Perfoliate: Referring to a leaf with base surrounding the stem, so that the stem apparently passes through it.

Petiole: The foot stalk of a leaf.

Pilose: Hairy, with distinct, soft, more or less spreading hairs.

Pinnate: Applied to a compound leaf when the leaflets are arranged along the rachis or stalk; and to veins when branching from along the midrib (feather-veined).

Pinnatifid: Pinnately cleft, the clefts not extending to the midrib.

Plumose: Feathered with fine hairs, as often the awns of grasses and the pappus bristles of *Compositae*.

Prickle: A more or less rigid, often hooked outgrowth of the bark or subepidermal tissue.

Prostrate: Flat on the ground.

Puberulous: Fine or minute pubescence.

Pubescent: Hairy or downy.

Scape, scapose, scorpioid: A peduncle or a flowerbearing stem, leafless or with leaves reduced to bracts, arising from the ground.

Sepal: One of the segments of the calyx or outer envelope of the flower.

Sessile: Not stalked, without a petiole, pedicel, or stipe.

Shrub: A woody plant, smaller than a tree and several-stemmed, without a trunk.

Spine: Sharp-pointed modified leaf or leaf part(s).

Strigose: Bearing stiff, straight, appressed hairs.

Succulent: Fleshy, thick and juicy.

Symbiotic: Descriptive of situations where two individuals live intimately together to their mutual benefit.

Tendrils: A slender organ, a modified leaf or branch, by means of which plants support themselves on other plants or on various objects.

Terete: Cylindric, with a circular cross section, not angled.

Terminal: At the summit or apex.

Thorn: A shortened and hardened, sharp-pointed branch.

Tomentose: A covering of soft, matted hairs.

Trailing: Lying on the ground, but not rooting at the nodes.

Translucent: Nearly transparent.

Tree: A large, woody plant with an evident trunk below the branches.

Villous: Pubescent, with long and weak but not matted hairs; long-pilose.

Viscid: Sticky.

Winter annual: A plant germinating in autumn and flowering or fruiting the following spring.

Appendix 5

Definitions of relative abundance designations.

Dom., Dominant: Occurs as a dominant or codominant on extensive acreages throughout the type, such as *Cercocarpus* spp. and *Quercus turbinella*.

Loc. Dom., Locally Dominant: Occurs as a dominant or codominant on limited acreages throughout the type, such as *Quercus gambelii* (mesic north slopes), *Eriogonum wrightii* (xeric sites), and *Fallugia paradoxa* (channel bottoms).

Com., Common: Occurs over a large percentage of the type and may be (1) dense enough to exert an appreciable ecological influence in the community, such as *Bouteloua curtipendula* and *Rhus trilobata*, or (2) in general, scattered throughout the type but not dense enough to exert an appreciable ecological influence in the community, such as *Rhamnus crocea* and *Verbena wrightii*.

Uncom., Uncommon: May be (1) present in very limited numbers throughout the type, such as *Sporobolus cryptandrus*, (2) prominent but limited to specific habitats, such as, *Salix* spp. (very mesic channel sites), *Acacias* spp., *Prosopis velutina*, *Simmondsia chinensis*, etc. which are desert shrub species prominent in the transition between desert shrub and chaparral, or (3) limited geographically, such as *Bromus trinitii* (has been identified only on the west slope of Mingus Mountain).

Appendix 6

Fire adaptation characteristics of important trees and shrubs of the Arizona chaparral.

Common name	Scientific name	Adaptation to fire
Trees		
Alligator juniper	<i>Juniperus deppeana</i>	Sprouts from root crown
Arizona cypress	<i>Cupressus arizonica</i>	Seed cones opened
Arizona oak	<i>Quercus arizonica</i>	Sprouts from root crown
Canyon live oak	<i>Quercus chrysolepis</i>	Sprouts from root crown
Emory oak	<i>Quercus emoryi</i>	Sprouts from root crown
Gambel oak	<i>Quercus gambelii</i>	Sprouts from root crown and roots
Lowell ash	<i>Fraxinus anomala</i>	Sprouts from root crown
New Mexico locust	<i>Robinia neomexicana</i>	Sprouts from root crown
One seeded juniper	<i>Juniperus monosperma</i>	None
Pinyon	<i>Pinus edulis</i>	None
Ponderosa pine	<i>Pinus ponderosa</i>	Thick bark provides considerable protection
Utah juniper	<i>Juniperus osteosperma</i>	None

Appendix 6—Continued

Common name	Scientific name	Adaptation to fire
Shrubs		
Baker serviceberry	<i>Amelanchier bakeri</i>	Sprouts from root crown
Birchleaf mountain-mahogany	<i>Cercocarpus betuloides</i>	Sprouts from root crown
California buckthorn	<i>Rhamnus californica</i>	Sprouts from root crown
Catclaw	<i>Acacia greggii</i>	Sprouts from root crown
Catclaw mimosa	<i>Mimosa biuncifera</i>	Sprouts from root crown
Datil yucca	<i>Yucca baccata</i>	Weak sprouter
Deerbrush ceanothus	<i>Ceanothus integerrimus</i>	Sprouts from root crown
Desert ceanothus	<i>Ceanothus greggii</i>	Weak sprouter; reproduces prolifically from seed following fire, germination stimulated by fire.
Snowberry	<i>Symphoricarpos</i> sp.	Sprouts from root crown
Hairy mountain-mahogany	<i>Cercocarpus breviflorus</i>	Sprouts from root crown
Engelmann pricklypear	<i>Opuntia phaeacantha</i> var. <i>discata</i>	None
Falsemesquite	<i>Calliandra eriophylla</i>	Sprouts from root crown
Hollyleaf buckthorn	<i>Rhamnus crocea</i>	Sprouts from root crown
Littleleaf krameria	<i>Krameria parvifolia</i>	Sprouts from root crown
Netleaf hackberry	<i>Celtis reticulata</i>	Sprouts from root crown
Palmer oak	<i>Quercus chrysolepis</i> var. <i>palmeri</i>	Sprouts from root crown
Parry agave	<i>Agave parryi</i>	None
Pointleaf manzanita	<i>Arctostaphylos pungens</i>	Reproduces prolifically from seeds which require heat scarification to germinate.
Pringle manzanita	<i>Arctostaphylos pringlei</i>	Like pointleaf manzanita
Redberry algerita	<i>Berberis haematocarpa</i>	Sprouts from root crown
Sacahuista (bear-grass)	<i>Nolina microcarpa</i>	Sprouts from root stock
Shrub live oak	<i>Quercus turbinella</i>	Sprouts from root crown
Skunkbush	<i>Rhus trilobata</i>	Sprouts from root crown
Soaptree yucca	<i>Yucca elata</i>	None
Sugar sumac	<i>Rhus ovata</i>	Sprouts from root crown
Yellowleaf silktassel	<i>Garrya flavescens</i>	Sprouts from root crown
Wheeler sotol	<i>Dasyliron wheeleri</i>	None
Wright silktassel	<i>Garrya wrightii</i>	Sprouts from root crown
Yerba-de-pasmo	<i>Baccharis pteronioides</i>	Sprouts from root crown
Yerba santa	<i>Eriodictyon angustifolium</i>	Reproduces from seed and prolifically by sprouting from shallow lateral roots.

Appendix 7

Species whose names have been changed since Kearney and Peebles
(1960) and Hitchcock (1960) were published.

Grasses

Old name	New name
<i>Andropogon barbinodis</i>	<i>Bothriochloa barbinodis</i>
<i>A. cirratus</i>	<i>Schizachyrium cirratum</i>
<i>A. scoparius</i>	<i>S. scoparius</i>
<i>Festuca octoflora</i>	<i>Vulpia octoflora</i>
<i>F. pacifica</i>	<i>V. microstachys</i>
<i>Koleria cristata</i>	<i>K. nitida</i>
<i>Tridens pilosus</i>	<i>Erioneuron pilosus</i>
<i>T. pulchellus</i>	<i>E. pulchellus</i>

Forbs and Grasslike Plants

Old name	New name
<i>Asclepias capricornu</i>	<i>A. asperula</i>
<i>Aster bigelovii</i>	<i>Machaeranthera bigelovii</i>
<i>A. tagetinus</i>	<i>M. tagetinus</i>
<i>A. tanacetifolius</i>	<i>M. tanacetifolius</i>
<i>Baeria chrysostoma</i>	<i>Lasthenia chrysostoma</i>
<i>Conopholis mexicana</i>	<i>C. alpina</i> var. <i>mexicana</i>
<i>Datura meteloides</i>	<i>D. wrightii</i>
<i>Erigeron canadensis</i>	<i>Conyza canadensis</i>
<i>Franseria confertiflora</i>	<i>Ambrosia confertiflora</i>
<i>Gilia aggregata</i>	<i>Ipomopsis aggregata</i>
<i>Happlopappus cuneatus</i>	<i>Ericameria cuneatus</i> var. <i>spatulata</i>
<i>H. gracilis</i>	<i>Machaeranthera gracilis</i>
<i>Heterotheca subaxillaris</i>	<i>Chrysopsis psammophila</i>
<i>Hoffmanseggia densiflora</i>	<i>H. glauca</i>
<i>Mentzelia pumila</i>	<i>M. multiflora</i>
<i>Oxybaphus coccinea</i>	<i>Mirabilis coccinea</i>
<i>O. linearis</i>	<i>M. linearis</i>
<i>O. pumilus</i>	<i>Allionia pumila</i>
<i>Pellaea longimucronata</i>	<i>P. truncata</i>
<i>Perezia nana</i>	<i>Acourtia nana</i>
<i>P. wrightii</i>	<i>A. wrightii</i>
<i>Plantago purshii</i>	<i>Plantago patagonica</i> var. <i>purshii</i>
<i>Salsola kali</i>	<i>S. iberica</i>
<i>Thlaspi fendleri</i>	<i>Thlaspi montanum</i> var. <i>fendleri</i>
<i>Tragia nepetaefolia</i>	<i>T. ramosa</i>
<i>Vicia exigua</i>	<i>V. ludoriciiana</i>
<i>Xanthium saccharatum</i>	<i>X. strumarium</i>

Appendix 7—Continued

Half shrubs

Old name	New name
<i>Aplopappus cuneatus</i>	<i>Ericameria cuneatus</i> var. <i>epatulata</i>
<i>A. heterophyllus</i>	<i>Isocoma wrightii</i>
<i>A. laricifolius</i>	<i>Ericameria laricifolius</i>
<i>A. spinulosus</i>	<i>Machaeranthera pennatifida</i>
<i>Dalea parryi</i>	<i>Marina parryi</i>
<i>Franseria deltoidea</i>	<i>Ambrosia deltoidea</i>
<i>Gutierrezia sarothrae</i>	<i>Xanthocephalum sarothrae</i>
<i>Senecio longilobus</i>	<i>S. douglasii</i> var. <i>longilobus</i>
<i>S. monoensis</i>	<i>S. douglasii</i> var. <i>douglasii</i>

Shrubs

Old name	New name
<i>Baccharis glutinosa</i>	<i>B. salicifolia</i>
<i>Ferocactus wislizeni</i>	<i>F. acanthodes</i>
<i>Franseria ambrosioides</i>	<i>Ambrosia ambrosioides</i>
<i>Opuntia engelmannii</i>	<i>O. phaeacantha</i> var. <i>discata</i>
<i>Pluchea sericea</i>	<i>Tessaria sericea</i>
<i>Rhus radicans</i>	<i>Toxicodendron radicans</i>

Trees

Old name	New name
<i>Fraxinus lowellii</i>	<i>Fraxinus anomala</i> var. <i>lowellii</i>
<i>Quercus palmeri</i>	<i>Q. chrysolepis</i> var. <i>palmeri</i>
<i>Tamarix pentandra</i>	<i>Tamarix chinensis</i>

Knipe, O. D., C. P. Pase, and R. S. Carmichael. 1979. Plant species of the Arizona chaparral. USDA For. Serv. Gen. Tech. Rep. RM-64, 54 p. Rocky Mt. For. and Exp. Stn., Fort Collins, Colo.

Lists the associations within the chaparral type, and the species that have been identified in the type, including scientific names, common names, duration, and relative abundance. As an aid to identification, family names are given as are distinguishing characteristics such as flower color, specific habitat requirements, unusual growth characteristics, etc. The species are listed according to growth form: grasses, forbs and grasslikes, half shrubs, shrubs, and trees.

